

Jan Delaval  
for search

# SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Robert (Rals) Shaw Examiner #: 79521 Date: 2/15/05  
Art Unit: 1626 Phone Number: 2-0707 Serial Number: 10/772036  
Mail Box and Bldg/Room Location: 5A10/5C 18 Results Format Preferred (circle) PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need. 10/772036

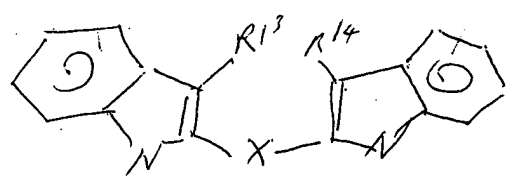
Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of invention: Analysis of molecule-3- (catalase)  
Inventors (please provide full names): Samuel et al Long et al

Earliest Priority Filing Date: \_\_\_\_\_

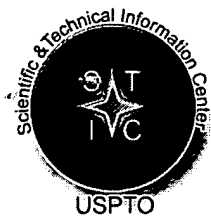
\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

2. Search cpd II  
(R)4 (R)4



\* X is O, S, C, N  
\* R is sub.

STAFF USE ONLY		Type of Search	Vendors and cost where applicable
Searcher <u>Jan</u>	NA Sequence (#) _____	STN <input checked="" type="checkbox"/>	
Searcher Phone # <u>22504</u>	AA Sequence (#) _____	Dialog _____	
Searcher Location _____	Structure (#) <input checked="" type="checkbox"/>	Questel/Orbit _____	
Date Searcher Picked Up <u>2/24/05</u>	Bibliographic _____	Dr. Link _____	
Date Completed <u>2/24/05</u>	Litigation _____	Lexis/Nexis _____	
Searcher Pre-Review Time _____	Fulltext _____	Sequence Systems _____	
Clerical Prep. me. <u>20</u>	Patent Family _____	WWW/Internet _____	
Estimate Time <u>405</u>	Other _____	Other (specify) _____	



# **STIC Search Report**

## **Biotech-Chem Library**

**STIC Database Tracking Number: 145411**

**TO: Rei-Tsang Shiao**  
**Location: 5a10 / 5c18**  
**Thursday, February 24, 2005**  
**Art Unit: 1626**  
**Phone: 272-0707**  
**Serial Number: 10 / 772036**

**From: Jan Delaval**  
**Location: Biotech-Chem Library**  
**Rem 1a51**  
**Phone: 272-2504**  
  
**jan.delaval@uspto.gov**

### **Search Notes**

=> fil reg

FILE 'REGISTRY' ENTERED AT 07:34:47 ON 24 FEB 2005

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 23 FEB 2005 HIGHEST RN 836595-43-8

DICTIONARY FILE UPDATES: 23 FEB 2005 HIGHEST RN 836595-43-8

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

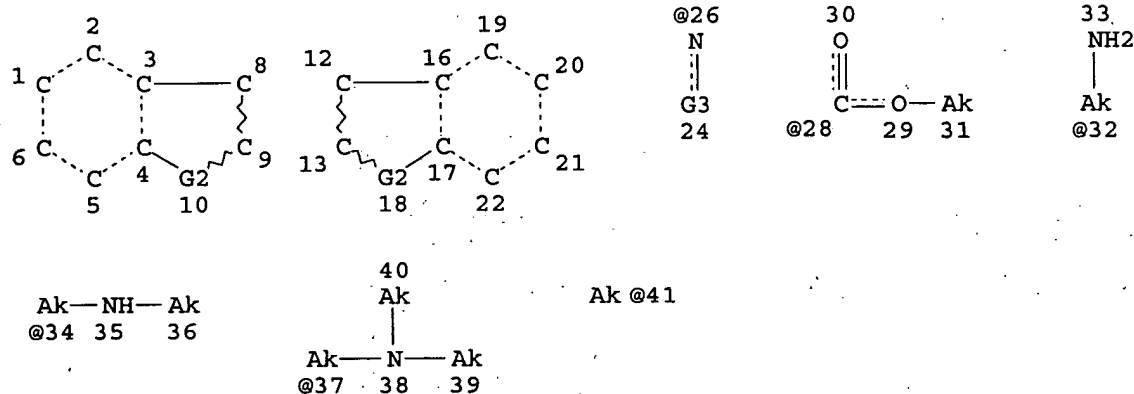
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:

<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> => d que l19

L14 STR



VAR G2=NH/26

VAR G3=41/28/32/34/37

NODE ATTRIBUTES:

CONNECT IS E1 RC AT 31

CONNECT IS E2 RC AT 32

CONNECT IS E2 RC AT 34

CONNECT IS E1 RC AT 36

CONNECT IS E2 RC AT 37

CONNECT IS E1 RC AT 39

CONNECT IS E1 RC AT 40

CONNECT IS E1 RC AT 41

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

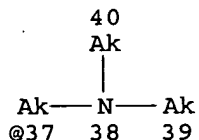
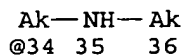
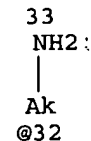
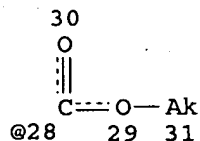
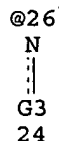
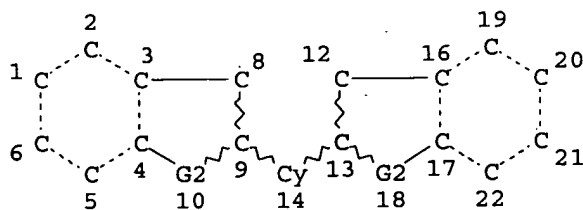
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 34

STEREO ATTRIBUTES: NONE

L16 65882 SEA FILE=REGISTRY SSS FUL L14

L17 STR



Ak @41

VAR G2=N/26

VAR G3=41/28/32/34/37

NODE ATTRIBUTES:

CONNECT IS E1 RC AT 31

CONNECT IS E2 RC AT 32

CONNECT IS E2 RC AT 34

CONNECT IS E1 RC AT 36

CONNECT IS E2 RC AT 37

CONNECT IS E1 RC AT 39

CONNECT IS E1 RC AT 40

CONNECT IS E1 RC AT 41

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 35

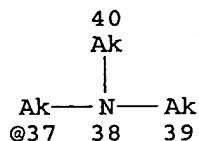
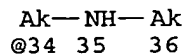
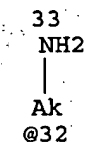
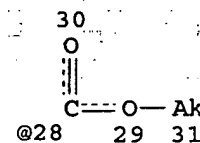
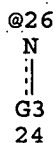
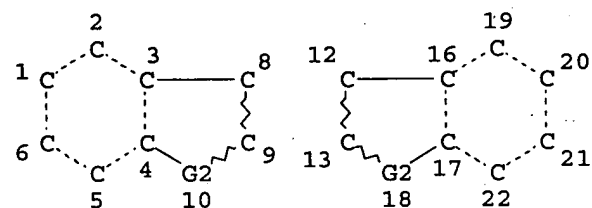
STEREO ATTRIBUTES: NONE

L19 155 SEA FILE=REGISTRY SUB=L16 SSS FUL L17

=&gt; d que l22

L14

STR



Ak @41

VAR G2=NH/26

VAR G3=41/28/32/34/37

NODE ATTRIBUTES:

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CONNECT IS E2 RC AT 32

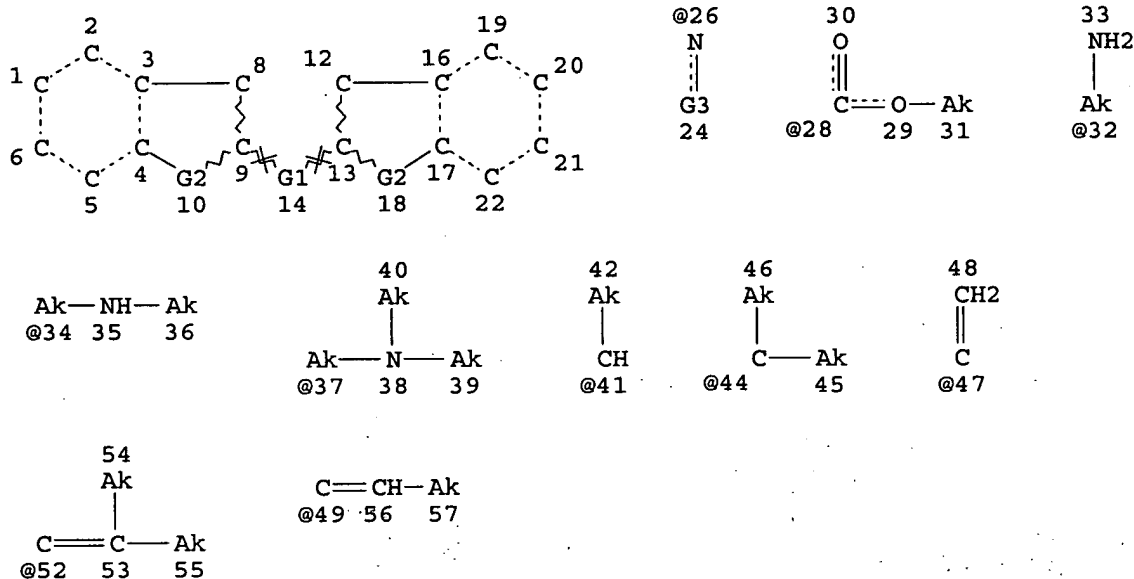
CONNECT IS E2 RC AT 34

CONNECT IS E1 RC AT 36

CONNECT IS E2 RC AT 37  
 CONNECT IS E1 RC AT 39  
 CONNECT IS E1 RC AT 40  
 CONNECT IS E1 RC AT 41  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 34

STEREO ATTRIBUTES: NONE  
 L16 65882 SEA FILE=REGISTRY SSS FUL L14  
 L20 STR

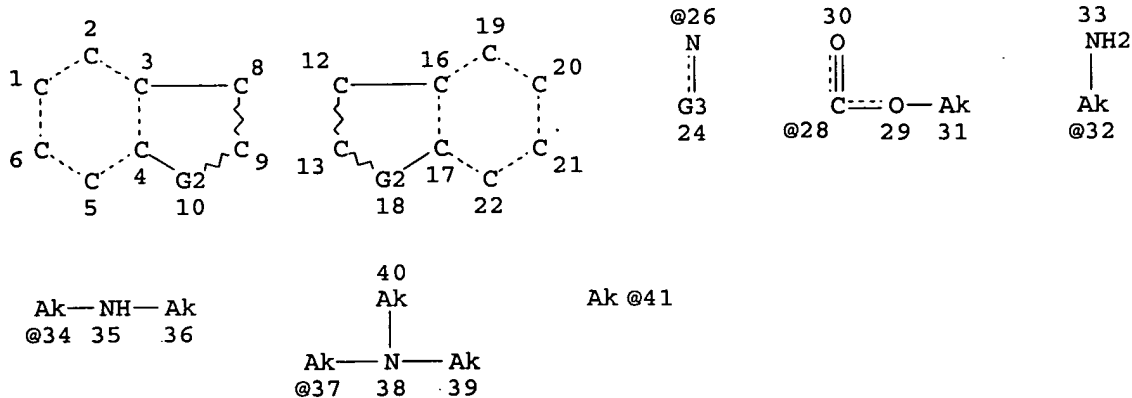


VAR G1=O/S/CH2/41/44/47/49/52/NH/26/C/N  
 VAR G2=NH/26  
 VAR G3=AK/28/32/34/37  
 NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 48

STEREO ATTRIBUTES: NONE  
 L22 623 SEA FILE=REGISTRY SUB=L16 SSS FUL L20

=> d que 132  
 L14 STR



VAR G2=NH/26

VAR G3=41/28/32/34/37

NODE ATTRIBUTES:

CONNECT IS E1 RC AT 31

CONNECT IS E2 RC AT 32

CONNECT IS E2 RC AT 34

CONNECT IS E1 RC AT 36

CONNECT IS E2 RC AT 37

CONNECT IS E1 RC AT 39

CONNECT IS E1 RC AT 40

CONNECT IS E1 RC AT 41

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

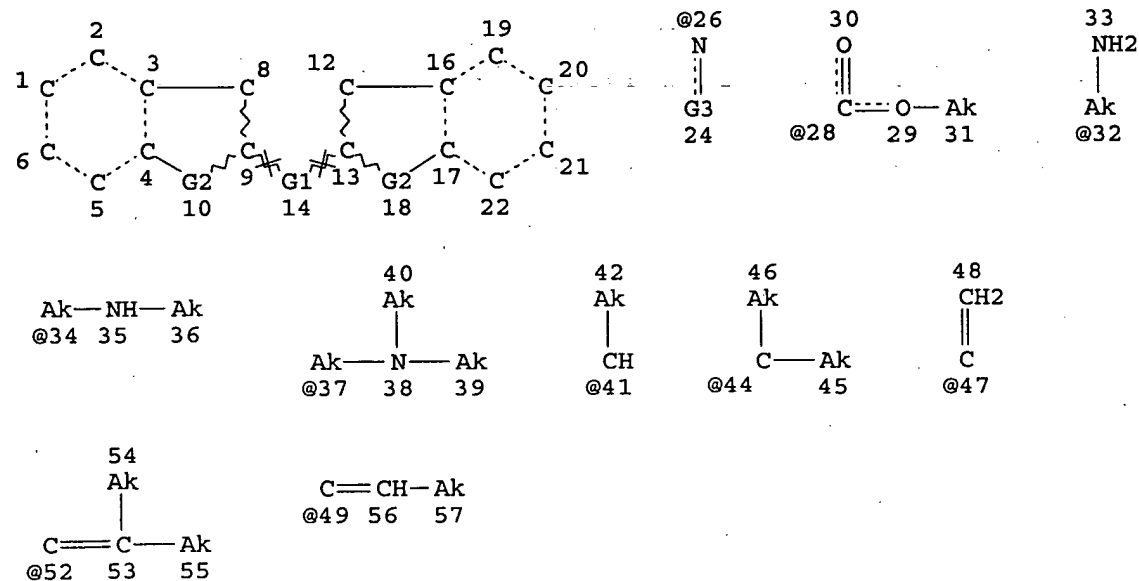
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 34

STEREO ATTRIBUTES: NONE

L16 65882 SEA FILE=REGISTRY SSS FUL L14

L20 STR



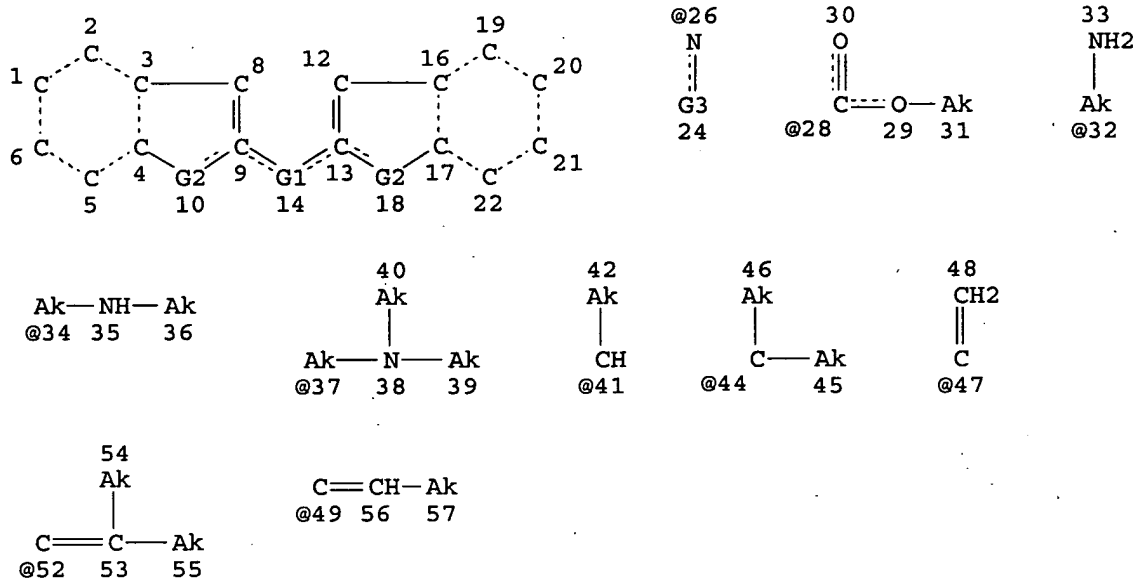
VAR G1=O/S/CH2/41/44/47/49/52/NH/26/C/N

VAR G2=NH/26

VAR G3=AK/28/32/34/37  
 NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 48

STEREO ATTRIBUTES: NONE  
 L22 623 SEA FILE=REGISTRY SUB=L16 SSS FUL L20  
 L30 STR



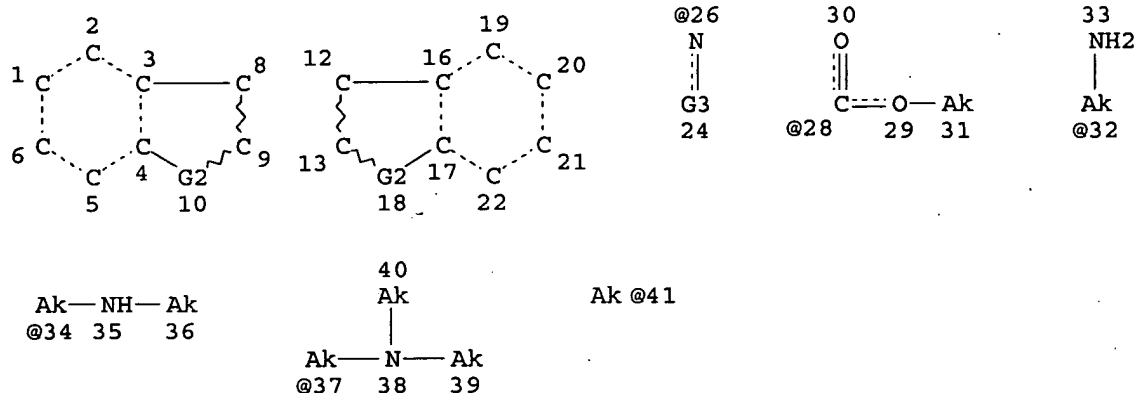
VAR G1=O/S/CH2/41/44/47/49/52/NH/26/C/N  
 VAR G2=NH/26  
 VAR G3=AK/28/32/34/37

NODE ATTRIBUTES:  
 CONNECT IS M1 RC AT 1  
 CONNECT IS M1 RC AT 2  
 CONNECT IS M1 RC AT 5  
 CONNECT IS M1 RC AT 6  
 CONNECT IS M1 RC AT 8  
 CONNECT IS M1 RC AT 12  
 CONNECT IS M1 RC AT 19  
 CONNECT IS M1 RC AT 20  
 CONNECT IS M1 RC AT 21  
 CONNECT IS M1 RC AT 22  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 48

STEREO ATTRIBUTES: NONE  
 L32 82 SEA FILE=REGISTRY SUB=L22 CSS FUL L30

=> d que 138  
 L14 STR



VAR G2=NH/26

VAR G3=41/28/32/34/37

NODE ATTRIBUTES:

CONNECT IS E1 RC AT 31

CONNECT IS E2 RC AT 32

CONNECT IS E2 RC AT 34

CONNECT IS E1 RC AT 36

CONNECT IS E2 RC AT 37

CONNECT IS E1 RC AT 39

CONNECT IS E1 RC AT 40

CONNECT IS E1 RC AT 41

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

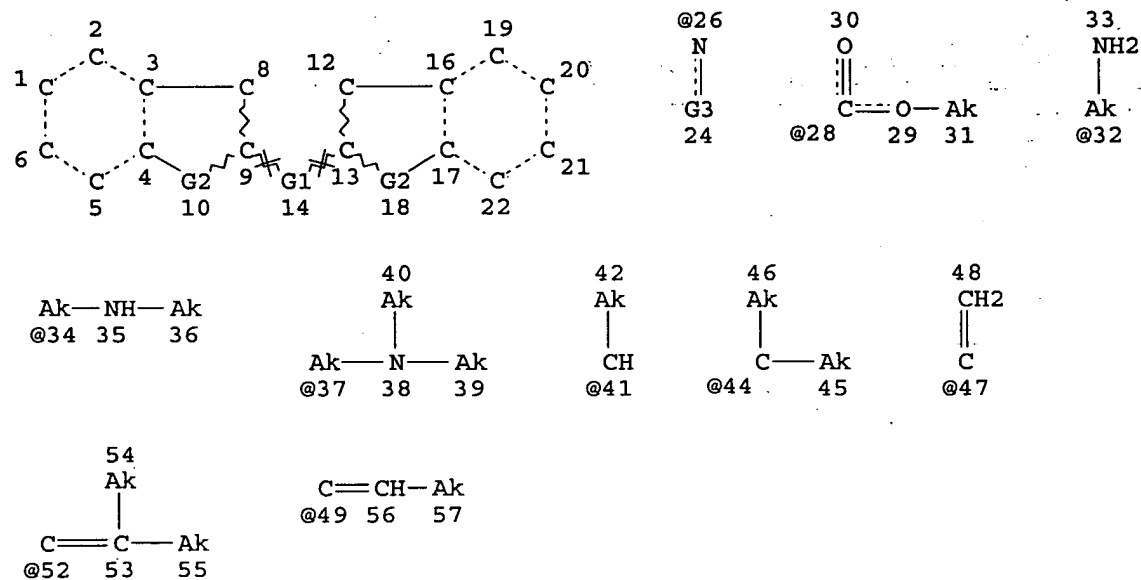
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 34

STEREO ATTRIBUTES: NONE

L16 65882 SEA FILE=REGISTRY SSS FUL L14

L20 STR



VAR G1=O/S/CH2/41/44/47/49/52/NH/26/C/N

VAR G2=NH/26



VAR G3=AK/28/32/34/37

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

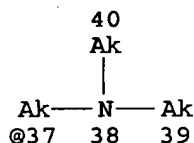
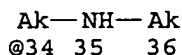
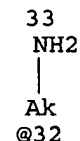
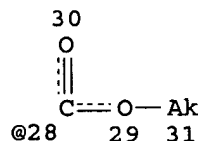
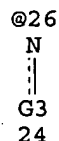
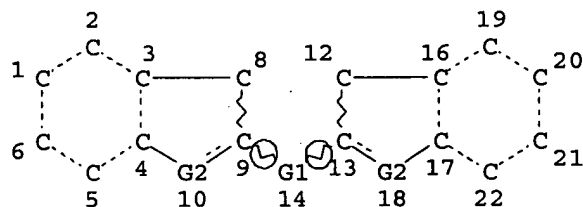
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 48

STEREO ATTRIBUTES: NONE

L22 623 SEA FILE=REGISTRY SUB=L16 SSS FUL L20

L36 STR



VAR G1=O/S/C/N

VAR G2=NH/26

VAR G3=AK/28/32/34/37

NODE ATTRIBUTES:

CONNECT IS M1 RC AT 1

CONNECT IS M1 RC AT 2

CONNECT IS M1 RC AT 5

CONNECT IS M1 RC AT 6

CONNECT IS M1 RC AT 8

CONNECT IS M1 RC AT 12

CONNECT IS M1 RC AT 19

CONNECT IS M1 RC AT 20

CONNECT IS M1 RC AT 21

CONNECT IS M1 RC AT 22

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 34

STEREO ATTRIBUTES: NONE

L38 109 SEA FILE=REGISTRY SUB=L22 SSS FUL L36

=> d his

(FILE 'HOME' ENTERED AT 06:32:46 ON 24 FEB 2005)  
SET COST OFF

FILE 'REGISTRY' ENTERED AT 06:33:00 ON 24 FEB 2005

L1 STR

L2 1 S L1 CSS SAM

FILE 'HCAPLUS' ENTERED AT 06:41:34 ON 24 FEB 2005

L3 1 S (US20040157906 OR US6800655 OR US20040043965)/PN OR (US2004-7  
 E SRI/PA,CS  
 E SRI IN/PA,CS  
 L4 4197 S SRI INT?/PA,CS  
 L5 11957 S SRI?/PA,CS  
 E JONG L/AU  
 L6 29 S E3,E4,E12  
 E CHAO W/AU  
 L7 74 S E3,E11,E17,E24  
 L8 3312 S ?INDOL?(L)?CARBAZOL?  
 L9 1 S L4-L7 AND L8 NOT DIMER  
 L10 1 S L3,L9  
 SEL RN

FILE 'REGISTRY' ENTERED AT 06:45:31 ON 24 FEB 2005

L11 80 S E1-E80  
 L12 54 S L11 AND NR>=4  
 L13 STR L1  
 L14 STR L13  
 L15 50 S L14  
 L16 65882 S L14 FUL  
 L17 STR L13  
 L18 2 S L17 SAM SUB=L16  
 L19 155 S L17 FUL SUB=L16  
 SAV L19 SHIAO772A/A  
 L20 STR L1  
 L21 5 S L20 SAM SUB=L16  
 L22 623 S L20 FUL SUB=L16  
 SAV L22 SHIAO772B/A  
 L23 25 S L11 AND L19,L22  
 L24 29 S L12 NOT L23  
 L25 108 S L19 NOT (CCS OR PMS OR MNS OR AYS)/CI  
 L26 10 S L25 AND (C24H20N2 OR C22H14N4O6 OR C32H30I2N2O4 OR C26H18N4O8  
 L27 8 S L26 NOT (3882-39-1 OR 161011-38-7)  
 SAV L27 SHIAO772C/A  
 L28 STR L20  
 L29 7 S L28 CSS SAM SUB=L22  
 L30 STR L28  
 L31 3 S L30 CSS SAM SUB=L22  
 L32 82 S L30 CSS FUL SUB=L22  
 SAV L32 SHIAO772D/A  
 L33 76 S L32 NOT L23  
 L34 72 S L33 NOT IUM  
 L35 10 S L34 AND (C21H22N2 OR C18H16N2S OR C28H26N4O4S3 OR C24H30N4S O  
 SAV L35 SHIAO772E/A  
 L36 STR L30  
 L37 7 S L36 SAM SUB=L22  
 L38 109 S L36 FUL SUB=L22  
 SAV L38 SHIAO773F/A  
 L39 90 S L38 NOT L23  
 L40 19 S L38 AND L23  
 L41 11 S L39 AND (C20H14N4 OR C19H15N3 OR C18H14N2S OR C20H17N3 OR C20  
 L42 10 S L41 NOT SPIRO  
 SAV L42 SHIAO773G/A  
 L43 53 S L23,L27,L35,L42  
 SAV L43 SHIAO773H/A  
 L44 514 S L22 NOT L38  
 L45 498 S L44 NOT L43  
 L46 333 S L45 NOT IUM  
 L47 321 S L46 AND 1/NC  
 L48 320 S L47 NOT IDS/CI  
 L49 289 S L48 NOT METHANONE

FILE 'HCAOLD' ENTERED AT 07:30:46 ON 24 FEB 2005

L50 2 S L43  
SEL AN  
EDIT E81-E81 /AN /OREF

FILE 'HCAPLUS' ENTERED AT 07:31:31 ON 24 FEB 2005

L51 2 S E81-E82  
L52 1 S L51 NOT POLLOCK ?/AU  
L53 32 S L43  
L54 1 S L52 AND L53  
L55 1 S L53 AND L3-7  
L56 1 S L10,L55  
L57 30 S L53 NOT L54,L56  
L58 26 S L57 AND (PD<=20020820 OR PRD<=20020820 OR AD<=20020820)  
L59 28 S L54,L56,L58  
L60 4 S L53 NOT L59

FILE 'USPATFULL' ENTERED AT 07:34:31 ON 24 FEB 2005

L61 6 S L43

FILE 'REGISTRY' ENTERED AT 07:34:47 ON 24 FEB 2005

=> fil uspatful

FILE 'USPATFULL' ENTERED AT 07:35:59 ON 24 FEB 2005

CA INDEXING COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

FILE COVERS 1971 TO PATENT PUBLICATION DATE: 22 Feb 2005 (20050222/PD)

FILE LAST UPDATED: 22 Feb 2005 (20050222/ED)

HIGHEST GRANTED PATENT NUMBER: US6859937

HIGHEST APPLICATION PUBLICATION NUMBER: US2005039239

CA INDEXING IS CURRENT THROUGH 22 Feb 2005 (20050222/UPCA)

ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 22 Feb 2005 (20050222/PD)

REVISED CLASS FIELDS (/NCL) LAST RELOADED: Dec 2004

USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Dec 2004

>>> USPAT2 is now available. USPATFULL contains full text of the <<<  
>>> original, i.e., the earliest published granted patents or <<<  
>>> applications. USPAT2 contains full text of the latest US <<<  
>>> publications, starting in 2001, for the inventions covered in <<<  
>>> USPATFULL. A USPATFULL record contains not only the original <<<  
>>> published document but also a list of any subsequent <<<  
>>> publications. The publication number, patent kind code, and <<<  
>>> publication date for all the US publications for an invention <<<  
>>> are displayed in the PI (Patent Information) field of USPATFULL <<<  
>>> records and may be searched in standard search fields, e.g., /PN, <<<  
>>> /PK, etc. <<<

>>> USPATFULL and USPAT2 can be accessed and searched together <<<  
>>> through the new cluster USPATALL. Type FILE USPATALL to <<<  
>>> enter this cluster. <<<  
>>> <<<  
>>> Use USPATALL when searching terms such as patent assignees, <<<  
>>> classifications, or claims, that may potentially change from <<<  
>>> the earliest to the latest publication. <<<

This file contains CAS Registry Numbers for easy and accurate  
substance identification.

=> d l61 bib abs hitstr tot

L61 ANSWER 1 OF 6 USPATFULL on STN

AN 2004:204014 USPATFULL

TI Analogs of indole-3-carbinol metabolites as chemotherapeutic and

chemopreventive agents  
 IN Jong, Ling, Sunnyvale, CA, UNITED STATES  
 Chao, Wan-Ru, Sunnyvale, CA, UNITED STATES  
 PI US 2004157906 A1 20040812  
 AI US 2004-772036 A1 20040203 (10)  
 RLI Division of Ser. No. US 2002-224979, filed on 20 Aug 2002, PENDING  
 DT Utility  
 FS APPLICATION  
 LREP REED & EBERLE LLP, 800 MENLO AVENUE, SUITE 210, MENLO PARK, CA, 94025  
 CLMN Number of Claims: 123  
 ECL Exemplary Claim: 1  
 DRWN 3 Drawing Page(s)  
 LN.CNT 3233

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Novel compounds useful as chemotherapeutic and chemopreventive agents are provided. The compounds are analogs of indole-3-carbinol metabolites wherein the structures and substituents of the compounds are selected to enhance the compounds' overall efficacy, particularly with respect to therapeutic activity, oral bioavailability, long-term safety, patient tolerability, and therapeutic window. The compounds are useful not only in treatment of cancer but also in prevention of cancer. One preferred class of the novel compounds have the structure of formula (I)  
 ##STR1##

wherein R.sup.1, R.sup.2, R.sup.3, R.sup.4, R.sup.5, R.sup.6, R.sup.7, R.sup.8, R.sup.9, R.sup.10, R.sup.11, and R.sup.12 are defined herein. Pharmaceutical compositions are provided as well, as are methods of synthesis and use.

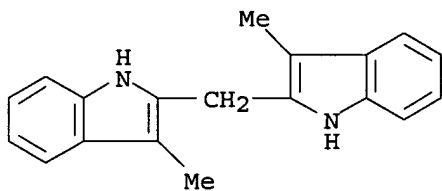
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 36798-17-1P 112485-52-6P 249762-98-9P  
 637774-61-9P 666752-22-3P 666752-29-0P  
 666752-30-3P 666752-34-7P 666752-35-8P  
 666752-38-1P 666752-41-6P

(preparation of indolo[2,3-b]carbazole analogs/metabolites as antitumor agents for chemotherapeutic and chemopreventive use)

RN 36798-17-1 USPATFULL

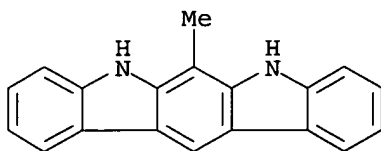
CN 1H-Indole, 2,2'-methylenebis[3-methyl- (9CI) (CA INDEX NAME)



*Signature*

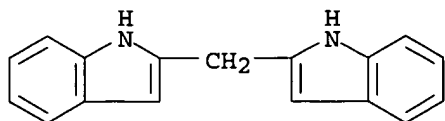
RN 112485-52-6 USPATFULL

CN Indolo[2,3-b]carbazole, 5,7-dihydro-6-methyl- (6CI, 9CI) (CA INDEX NAME)



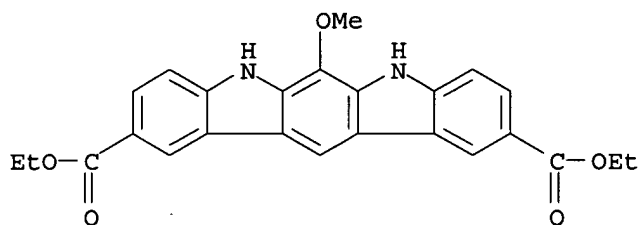
RN 249762-98-9 USPATFULL

CN 1H-Indole, 2,2'-methylenebis- (9CI) (CA INDEX NAME)



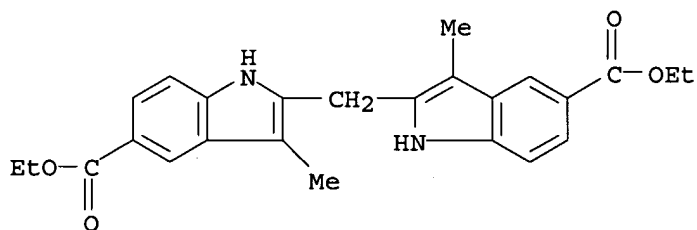
RN 637774-61-9 USPATFULL

CN Indolo[2,3-b]carbazole-2,10-dicarboxylic acid, 5,7-dihydro-6-methoxy-, diethyl ester (9CI) (CA INDEX NAME)



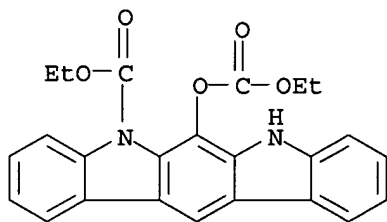
RN 666752-22-3 USPATFULL

CN 1H-Indole-5-carboxylic acid, 2,2'-methylenebis[3-methyl-, diethyl ester (9CI) (CA INDEX NAME)



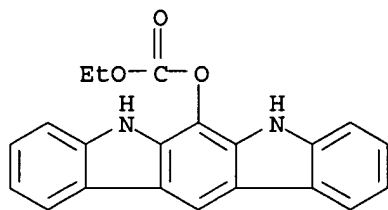
RN 666752-29-0 USPATFULL

CN Indolo[2,3-b]carbazole-5(7H)-carboxylic acid, 6-[(ethoxycarbonyl)oxy]-, ethyl ester (9CI) (CA INDEX NAME)



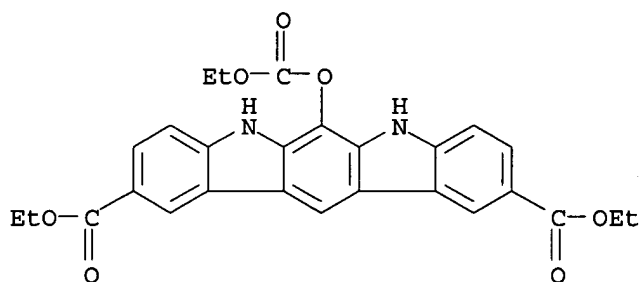
RN 666752-30-3 USPATFULL

CN Carbonic acid, 5,7-dihydroindolo[2,3-b]carbazol-6-yl ethyl ester (9CI) (CA INDEX NAME)



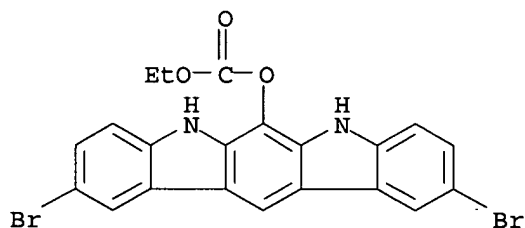
RN 666752-34-7 USPATFULL

CN Indolo[2,3-b]carbazole-2,10-dicarboxylic acid, 6-[(ethoxycarbonyl)oxy]-5,7-dihydro-, diethyl ester (9CI) (CA INDEX NAME)



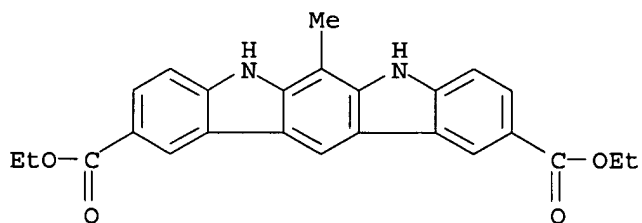
RN 666752-35-8 USPATFULL

CN Carbonic acid, 2,10-dibromo-5,7-dihydroindolo[2,3-b]carbazol-6-yl ethyl ester (9CI) (CA INDEX NAME)



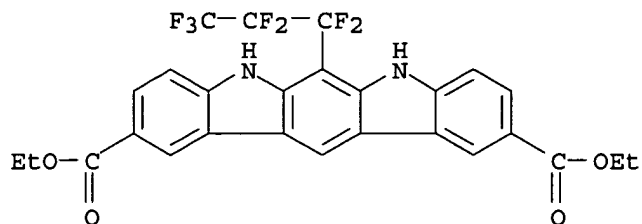
RN 666752-38-1 USPATFULL

CN Indolo[2,3-b]carbazole-2,10-dicarboxylic acid, 5,7-dihydro-6-methyl-, diethyl ester (9CI) (CA INDEX NAME)



RN 666752-41-6 USPATFULL

CN Indolo[2,3-b]carbazole-2,10-dicarboxylic acid, 6-(heptafluoropropyl)-5,7-dihydro-, diethyl ester (9CI) (CA INDEX NAME)

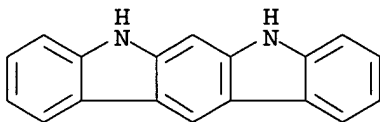


IT 111296-90-3P 666752-19-8P 666752-20-1P  
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 666752-39-2P 666752-40-5P 666752-42-7P  
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(preparation of indolo[2,3-b]carbazole analogs/metabolites as antitumor agents for chemotherapeutic and chemopreventive use)

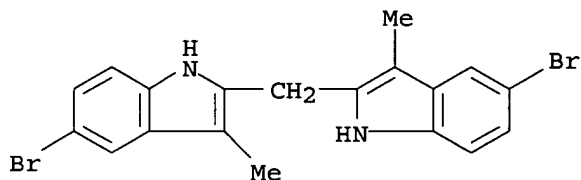
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CN Indolo[2,3-b]carbazole, 5,7-dihydro- (6CI, 9CI) (CA INDEX NAME)



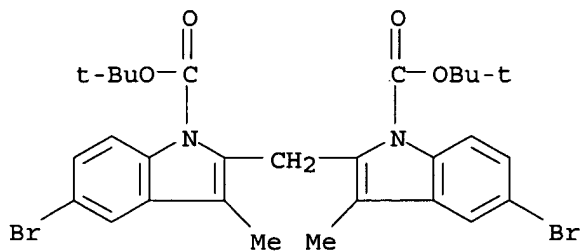
RN 666752-19-8 USPATFULL

CN 1H-Indole, 2,2'-methylenebis[5-bromo-3-methyl- (9CI) (CA INDEX NAME)



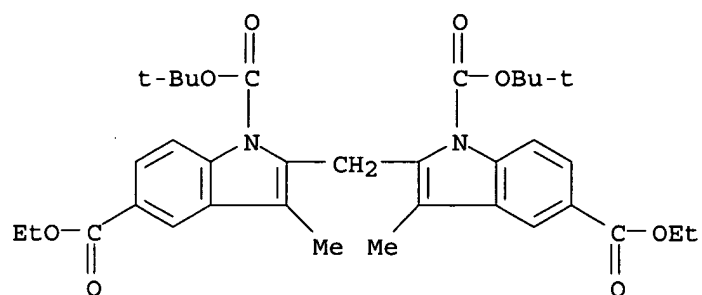
RN 666752-20-1 USPATFULL

CN 1H-Indole-1-carboxylic acid, 2,2'-methylenebis[5-bromo-3-methyl-, bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



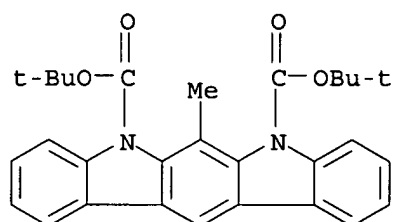
RN 666752-21-2 USPATFULL

CN 1H-Indole-1,5-dicarboxylic acid, 2,2'-methylenebis[3-methyl-, 1,1'-bis(1,1-dimethylethyl) 5,5'-diethyl ester (9CI) (CA INDEX NAME)



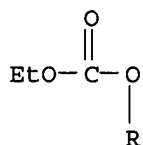
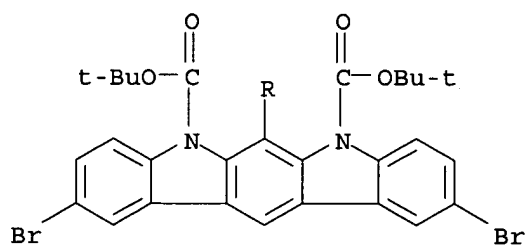
RN 666752-31-4 USPATFULL

CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 6-methyl-,  
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RN 666752-32-5 USPATFULL

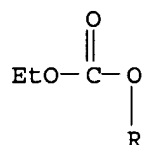
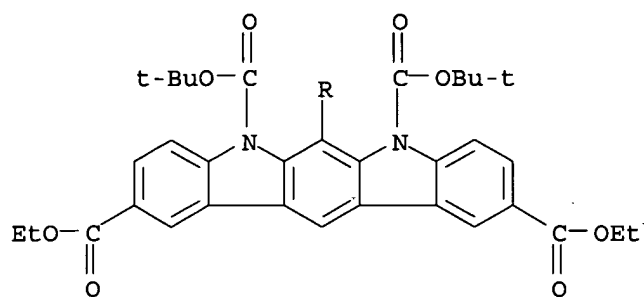
CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-  
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NAME)



RN 666752-33-6 USPATFULL

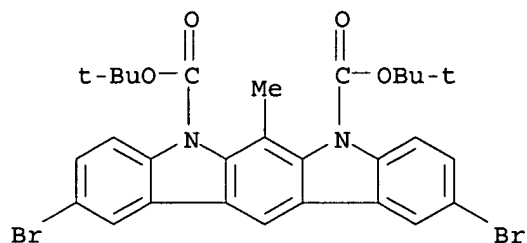
CN Indolo[2,3-b]carbazole-2,5,7,10-tetracarboxylic acid, 6-  
[(ethoxycarbonyl)oxy]-, 5,7-bis(1,1-dimethylethyl) 2,10-diethyl ester  
(9CI) (CA INDEX NAME)





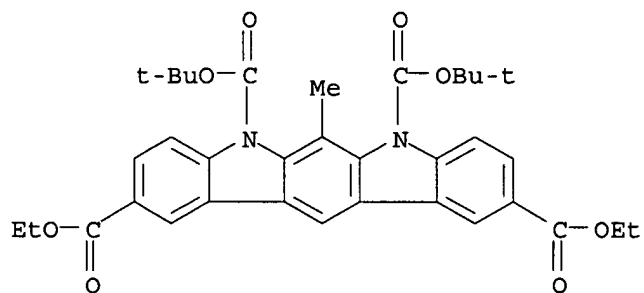
RN 666752-36-9 USPATFULL

CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-methyl-,  
bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



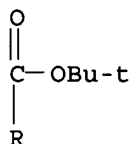
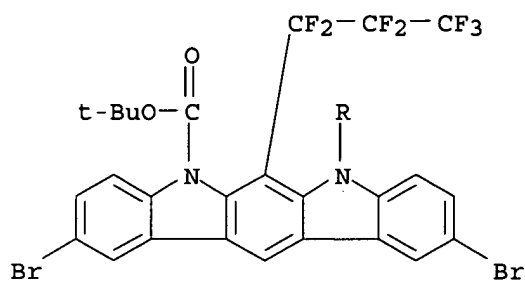
RN 666752-37-0 USPATFULL

CN Indolo[2,3-b]carbazole-2,5,7,10-tetracarboxylic acid, 6-methyl-,  
5,7-bis(1,1-dimethylethyl) 2,10-diethyl ester (9CI) (CA INDEX NAME)



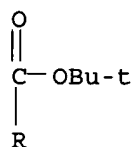
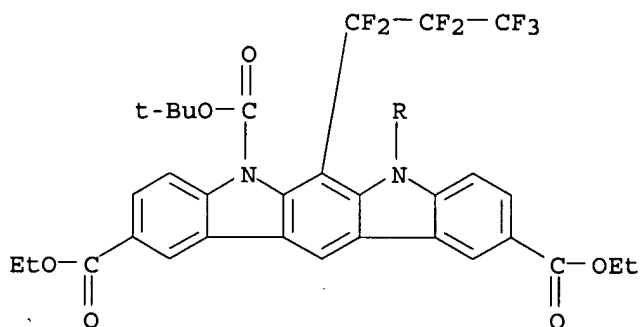
RN 666752-39-2 USPATFULL

CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-(heptafluoropropyl)-, bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



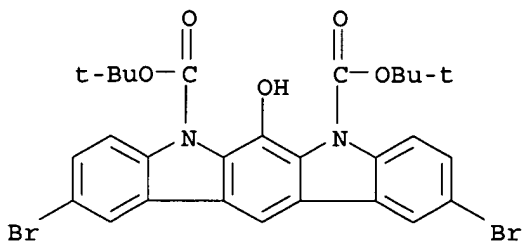
RN 666752-40-5 USPATFULL

CN Indolo[2,3-b]carbazole-2,5,7,10-tetracarboxylic acid, 6-(heptafluoropropyl)-, 5,7-bis(1,1-dimethylethyl) 2,10-diethyl ester (9CI) (CA INDEX NAME)

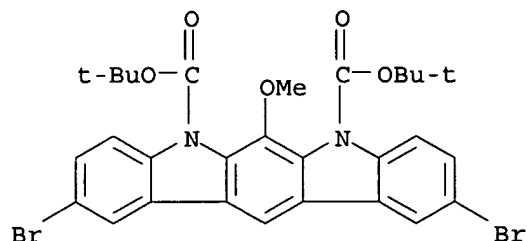


RN 666752-42-7 USPATFULL

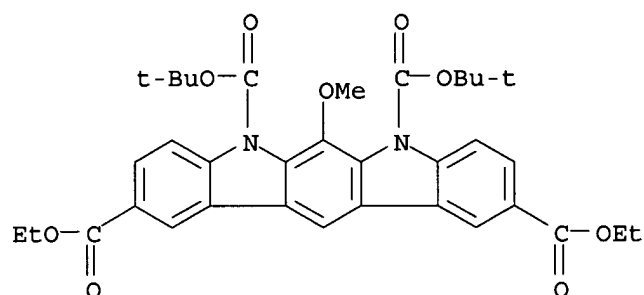
CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-hydroxy-, bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



RN 666752-43-8 USPATFULL

CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-methoxy-,  
bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)

RN 666752-44-9 USPATFULL

CN Indolo[2,3-b]carbazole-2,5,7,10-tetracarboxylic acid, 6-methoxy-,  
5,7-bis(1,1-dimethylethyl) 2,10-diethyl ester (9CI) (CA INDEX NAME)

L61 ANSWER 2 OF 6 USPATFULL on STN

AN 2004:57958 USPATFULL

TI Analogs of indole-3-carbinol metabolites as chemotherapeutic and  
chemopreventive agents

IN Jong, Ling, Sunnyvale, CA, UNITED STATES

Chao, Wan-Ru, Sunnyvale, CA, UNITED STATES

PI US 2004043965 A1 20040304

US 6800655 B2 20041005

AI US 2002-224979 A1 20020820 (10)

DT Utility

FS APPLICATION

LREP REED &amp; EBERLE LLP, 800 MENLO AVENUE, SUITE 210, MENLO PARK, CA, 94025

CLMN Number of Claims: 123

ECL Exemplary Claim: 1

DRWN 3 Drawing Page(s)

LN.CNT 3233

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Novel compounds useful as chemotherapeutic and chemopreventive agents are provided. The compounds are analogs of indole-3-carbinol metabolites wherein the structures and substituents of the compounds are selected to enhance the compounds' overall efficacy, particularly with respect to therapeutic activity, oral bioavailability, long-term safety, patient tolerability, and therapeutic window. The compounds are useful not only in treatment of cancer but also in prevention of cancer. One preferred class of the novel compounds have the structure of formula (I)

##STR1##

wherein R.sup.1, R.sup.2, R.sup.3, R.sup.4, R.sup.5, R.sup.6, R.sup.7, R.sup.8, R.sup.9, R.sup.10, R.sup.11, and R.sup.12 are defined herein. Pharmaceutical compositions are provided as well, as are methods of synthesis and use.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 36798-17-1P 112485-52-6P 249762-98-9P

637774-61-9P 666752-22-3P 666752-29-0P

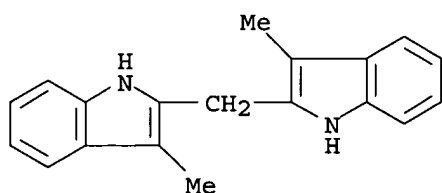
666752-30-3P 666752-34-7P 666752-35-8P

666752-38-1P 666752-41-6P

(preparation of indolo[2,3-b]carbazole analogs/metabolites as antitumor agents for chemotherapeutic and chemopreventive use)

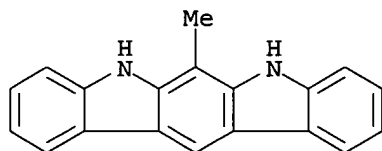
RN 36798-17-1 USPATFULL

CN 1H-Indole, 2,2'-methylenebis[3-methyl- (9CI) (CA INDEX NAME)



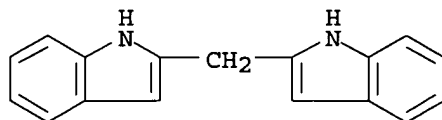
RN 112485-52-6 USPATFULL

CN Indolo[2,3-b]carbazole, 5,7-dihydro-6-methyl- (6CI, 9CI) (CA INDEX NAME)



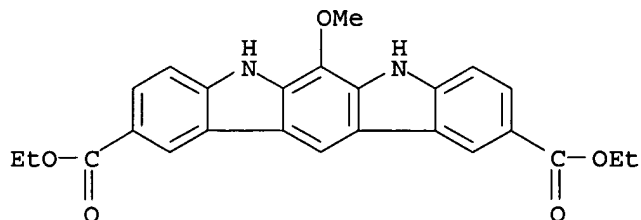
RN 249762-98-9 USPATFULL

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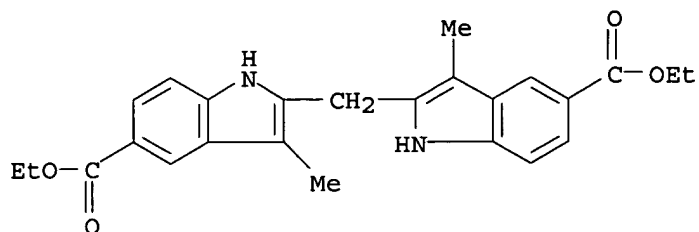


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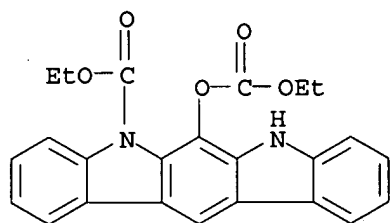
CN Indolo[2,3-b]carbazole-2,10-dicarboxylic acid, 5,7-dihydro-6-methoxy-, diethyl ester (9CI) (CA INDEX NAME)



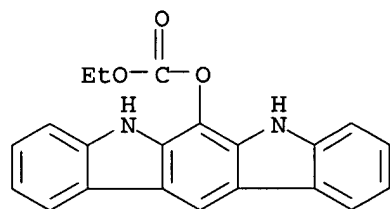
RN 666752-22-3 USPATFULL

CN 1H-Indole-5-carboxylic acid, 2,2'-methylenebis[3-methyl-, diethyl ester  
(9CI) (CA INDEX NAME)

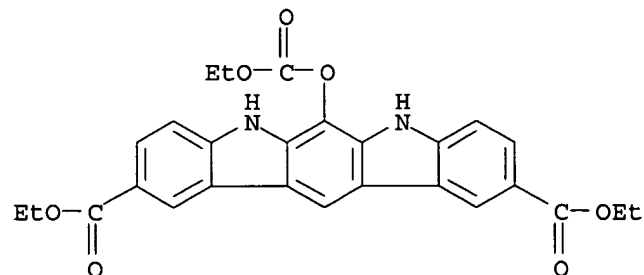
RN 666752-29-0 USPATFULL

CN Indolo[2,3-b]carbazole-5(7H)-carboxylic acid, 6-[(ethoxycarbonyl)oxy]-,  
ethyl ester (9CI) (CA INDEX NAME)

RN 666752-30-3 USPATFULL

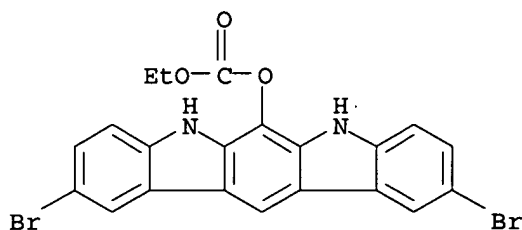
CN Carbonic acid, 5,7-dihydroindolo[2,3-b]carbazol-6-yl ethyl ester (9CI)  
(CA INDEX NAME)

RN 666752-34-7 USPATFULL

CN Indolo[2,3-b]carbazole-2,10-dicarboxylic acid, 6-[(ethoxycarbonyl)oxy]-5,7-  
dihydro-, diethyl ester (9CI) (CA INDEX NAME)

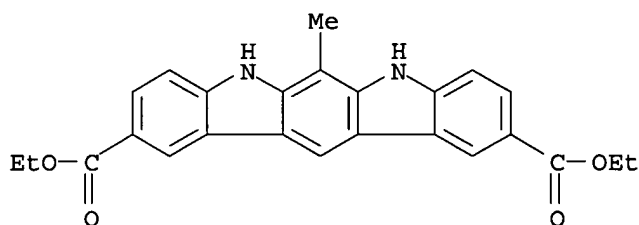
RN 666752-35-8 USPATFULL

CN Carbonic acid, 2,10-dibromo-5,7-dihydroindolo[2,3-b]carbazol-6-yl ethyl ester (9CI) (CA INDEX NAME)



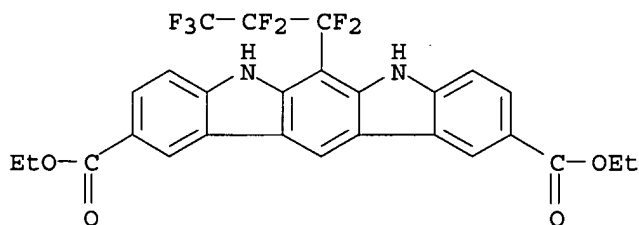
RN 666752-38-1 USPATFULL

CN Indolo[2,3-b]carbazole-2,10-dicarboxylic acid, 5,7-dihydro-6-methyl-, diethyl ester (9CI) (CA INDEX NAME)



RN 666752-41-6 USPATFULL

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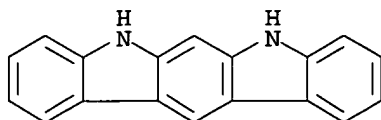


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 666752-39-2P 666752-40-5P 666752-42-7P  
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(preparation of indolo[2,3-b]carbazole analogs/metabolites as antitumor agents for chemotherapeutic and chemopreventive use)

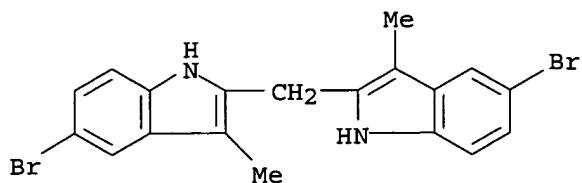
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CN Indolo[2,3-b]carbazole, 5,7-dihydro- (6CI, 9CI) (CA INDEX NAME)



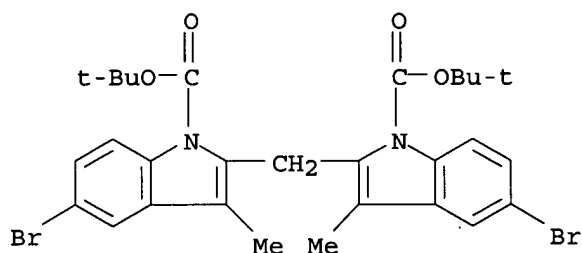
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CN 1H-Indole, 2,2'-methylenebis[5-bromo-3-methyl- (9CI) (CA INDEX NAME)



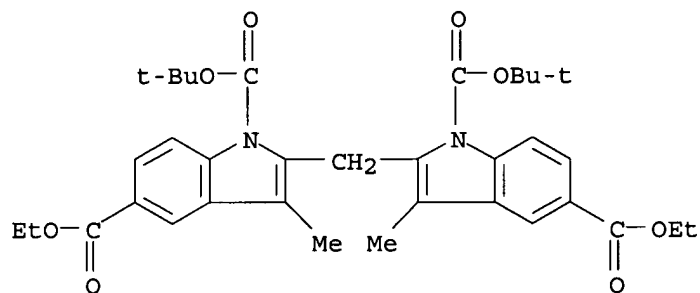
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CN 1H-Indole-1-carboxylic acid, 2,2'-methylenebis[5-bromo-3-methyl-, bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



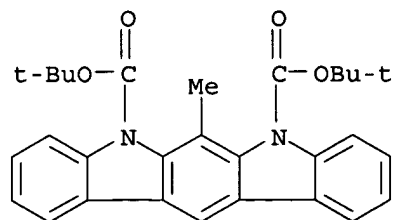
RN 666752-21-2 USPATFULL

CN 1H-Indole-1,5-dicarboxylic acid, 2,2'-methylenebis[3-methyl-, 1,1'-bis(1,1-dimethylethyl) 5,5'-diethyl ester (9CI) (CA INDEX NAME)



RN 666752-31-4 USPATFULL

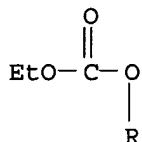
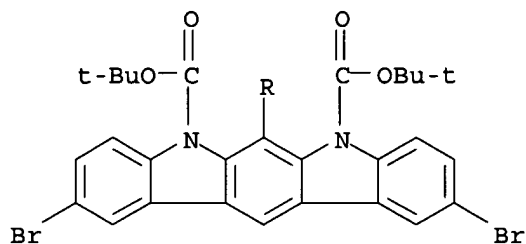
CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 6-methyl-, bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



RN 666752-32-5 USPATFULL

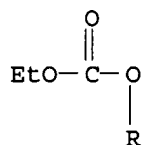
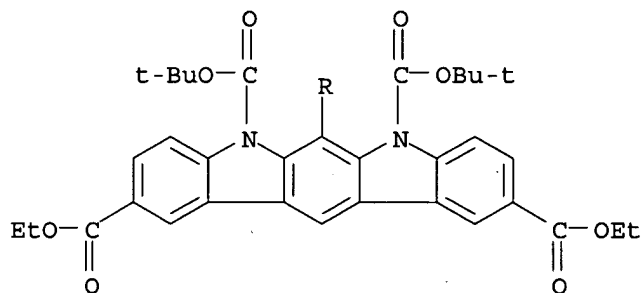
CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-

[(ethoxycarbonyl)oxy]-, bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



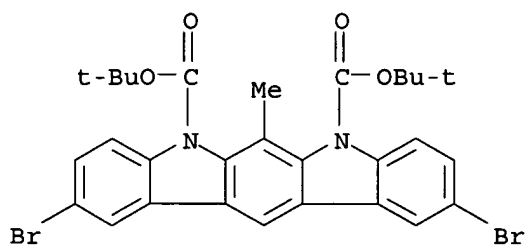
RN 666752-33-6 USPATFULL

CN Indolo[2,3-b]carbazole-2,5,7,10-tetracarboxylic acid, 6-[(ethoxycarbonyl)oxy]-, 5,7-bis(1,1-dimethylethyl) 2,10-diethyl ester (9CI) (CA INDEX NAME)



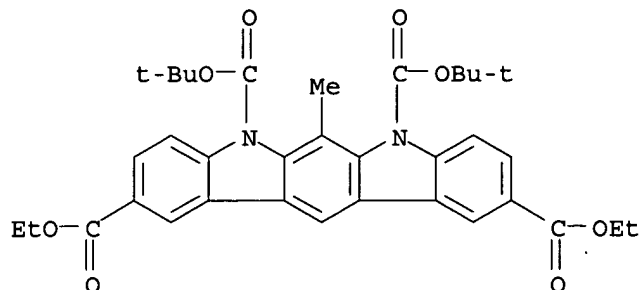
RN 666752-36-9 USPATFULL

CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-methyl-, bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)

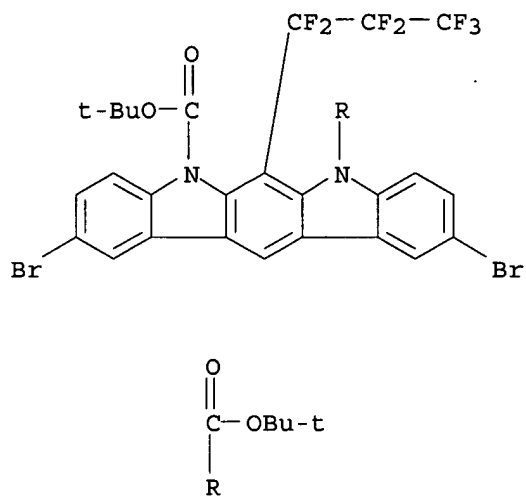




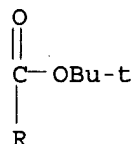
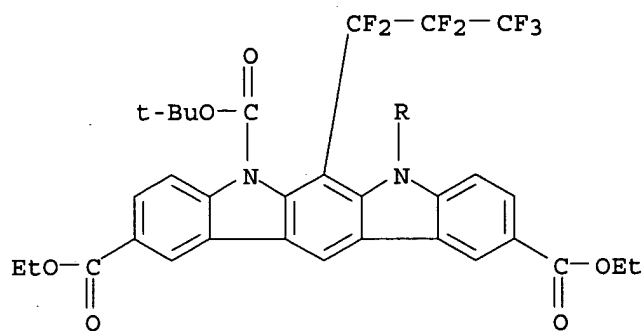
RN 666752-37-0 USPATFULL  
 CN Indolo[2,3-b]carbazole-2,5,7,10-tetracarboxylic acid, 6-methyl-,  
 5,7-bis(1,1-dimethylethyl) 2,10-diethyl ester (9CI) (CA INDEX NAME)



RN 666752-39-2 USPATFULL  
 CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-(heptafluoropropyl)-, bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)

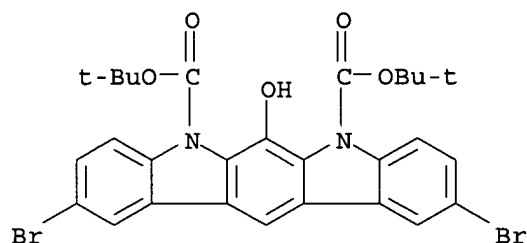


RN 666752-40-5 USPATFULL  
 CN Indolo[2,3-b]carbazole-2,5,7,10-tetracarboxylic acid, 6-(heptafluoropropyl)-, 5,7-bis(1,1-dimethylethyl) 2,10-diethyl ester (9CI) (CA INDEX NAME)



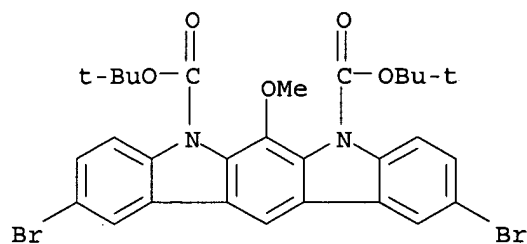
RN 666752-42-7 USPATFULL

CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-hydroxy-,  
bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



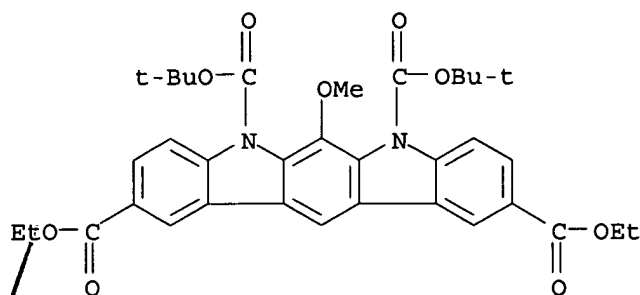
RN 666752-43-8 USPATFULL

CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-methoxy-,  
bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



RN 666752-44-9 USPATFULL

CN Indolo[2,3-b]carbazole-2,5,7,10-tetracarboxylic acid, 6-methoxy-,  
5,7-bis(1,1-dimethylethyl) 2,10-diethyl ester (9CI) (CA INDEX NAME)



L61 ANSWER 3 OF 6 USPATFULL on STN

AN 2004:18601 USPATFULL

TI Organic electroluminescence element

IN Lin, Tung-Shen, Tainan, TAIWAN, PROVINCE OF CHINA

PA LIGHTRONIK TECHNOLOGY INC., Tainan, TAIWAN, PROVINCE OF CHINA (non-U.S. corporation)

PI US 2004013903 A1 20040122

US 6790539 B2 20040914

AI US 2002-197825 A1 20020719 (10)

DT Utility

FS APPLICATION

LREP INTELLECTUAL PROPERTY SOLUTIONS, INCORPORATED, 5717 COLFAX AVENUE, ALEXANDRIA, VA, 22311

CLMN Number of Claims: 6

ECL Exemplary Claim: 1

DRWN 10 Drawing Page(s)

LN.CNT 350

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB An organic EL device which contains an anode, a cathode, and at least one organic thin-file layer including a light emitting layer which contains a compound represented by the following general formula (1):  
##STR1##

wherein Ar.sub.1, Ar.sub.2 represent a substituted or unsubstituted aromatic hydrocarbon group, or a substituted or unsubstituted aromatic heterocyclic group; Y represents a single bound or methylene group; R1 to R4 represent each independently a hydrogen, a halogen, a cyano group, a substituted amino group, a substituted alkoxy group, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aromatic hydrocarbon group, or a substituted or unsubstituted aromatic heterocyclic group; any two of R1 to R4 may form a ring. R5 represents a substituted or unsubstituted alkyl group, a substituted or unsubstituted aromatic hydrocarbon group, or a substituted or unsubstituted aromatic heterocyclic group.

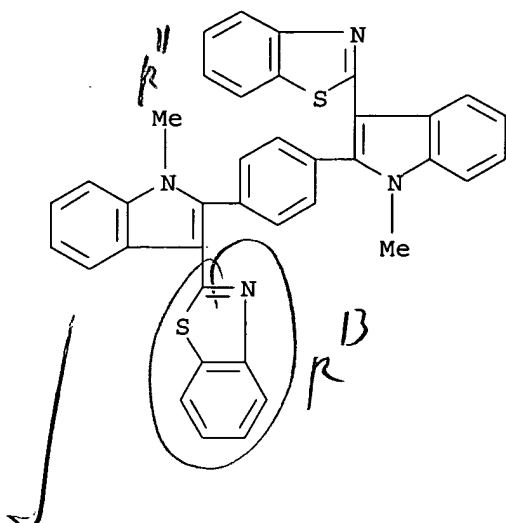
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 649728-50-7P

(blue-emitting organic electroluminescent devices based on indole derivs.)

RN 649728-50-7 USPATFULL

CN Benzothiazole, 2,2'-[1,4-phenylenebis(1-methyl-1H-indole-2,3-diyl)]bis-  
(9CI) (CA INDEX NAME)



L61 ANSWER 4 OF 6 USPATFULL on STN  
 AN 2003:11194 USPATFULL  
 TI Indole derivatives and their use for the treatment of malignant and other diseases based on pathological proliferation  
 IN Mahboobi, Siavosh, Regensburg, GERMANY, FEDERAL REPUBLIC OF  
 Kuhr, Sabine, Westerstede, GERMANY, FEDERAL REPUBLIC OF  
 Pongratz, Herwig, Regensburg, GERMANY, FEDERAL REPUBLIC OF  
 Popp, Alfred, Burghausen, GERMANY, FEDERAL REPUBLIC OF  
 Hufsky, Harald, Gaimersheim, GERMANY, FEDERAL REPUBLIC OF  
 Bohmer, Frank-D, Dorndorf, GERMANY, FEDERAL REPUBLIC OF  
 Teller, Steffen, Jena, GERMANY, FEDERAL REPUBLIC OF  
 Uecker, Andrea, Neuengonna, GERMANY, FEDERAL REPUBLIC OF  
 Beckers, Thomas, Frankfurt, GERMANY, FEDERAL REPUBLIC OF  
 PI US 2003008898 A1 20030109  
 US 6812243 B2 20041102  
 AI US 2002-137653 A1 20020503 (10)  
 RLI Division of Ser. No. US 1999-305115, filed on 4 May 1999, GRANTED, Pat. No. US 6407102  
 PRAI DE 1998-19819835 19980504  
 DE 1998-19838506 19980825  
 DT Utility  
 FS APPLICATION  
 LREP Pillsbury Winthrop LLP, Intellectual Property Group, 1600 Tysons Boulevard, McLean, VA, 22102  
 CLMN Number of Claims: 24  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 1461  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 AB The invention relates to tyrosine kinase inhibitors of the bis-indolyl compound type of the general formula I: ##STR1##

pharmaceuticals containing them and their use for the treatment of malignant and other diseases based on pathological cell proliferation.

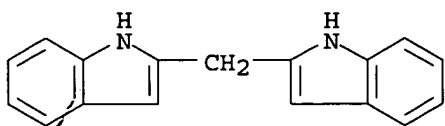
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 249762-98-9P

(preparation of bis(indolyl)methane derivs. as tyrosine kinase inhibitors)

RN 249762-98-9 USPATFULL

CN 1H-Indole, 2,2'-methylenebis- (9CI) (CA INDEX NAME)



L61 ANSWER 5 OF 6 USPATFULL on STN  
 AN 2002:144272 USPATFULL  
 TI Indole derivatives and their use for the treatment of malignant and other diseases based on pathological cell proliferation  
 IN Mahboobi, Siavosh, Regensburg, GERMANY, FEDERAL REPUBLIC OF  
 Kuhr, Sabine, Westerstede, GERMANY, FEDERAL REPUBLIC OF  
 Pongratz, Herwig, Regensburg, GERMANY, FEDERAL REPUBLIC OF  
 Popp, Alfred, Burghausen, GERMANY, FEDERAL REPUBLIC OF  
 Hufsky, Harald, Gaimersheim, GERMANY, FEDERAL REPUBLIC OF  
 Bohmer, Frank-D, Dorndorf, GERMANY, FEDERAL REPUBLIC OF  
 Teller, Steffen, Jena, GERMANY, FEDERAL REPUBLIC OF  
 Uecker, Andrea, Neuengonna, GERMANY, FEDERAL REPUBLIC OF  
 Beckers, Thomas, Frankfurt, GERMANY, FEDERAL REPUBLIC OF  
 PA Zentaris AG, Frankfurt/Main, GERMANY, FEDERAL REPUBLIC OF (non-U.S. corporation)  
 PI US 6407102 B1 20020618  
 AI US 1999-305115 19990504 (9)  
 PRAI DE 1998-19819835 19980504  
 DE 1998-19838506 19980825  
 DT Utility  
 FS GRANTED  
 EXNAM Primary Examiner: Solola, T. A.  
 LREP Pillsbury Winthrop LLP  
 CLMN Number of Claims: 11  
 ECL Exemplary Claim: 1  
 DRWN 0 Drawing Figure(s); 0 Drawing Page(s)  
 LN.CNT 1396  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 AB The invention relates to tyrosine kinase inhibitors of the bis-indolyl compound type of the general formula I: ##STR1##

pharmaceuticals containing them and their use for the treatment of malignant and other diseases based on pathological cell proliferation.

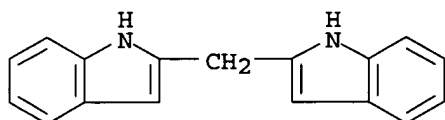
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 249762-98-9P

(preparation of bis(indolyl)methane derivs. as tyrosine kinase inhibitors)

RN 249762-98-9 USPATFULL

CN 1H-Indole, 2,2'-methylenebis- (9CI) (CA INDEX NAME)



L61 ANSWER 6 OF 6 USPATFULL on STN

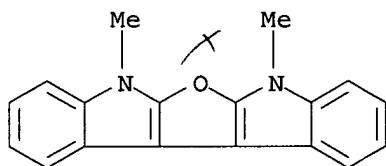
AN 2001:29066 USPATFULL

TI Near infrared-absorbing electrochromic compounds and devices comprising same

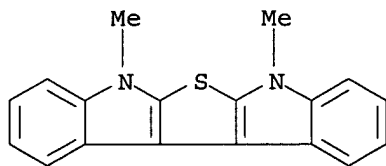
IN Thieste, Dave, Byron Center, MI, United States

Byker, Harlan J., Holland, MI, United States  
 Baumann, Kelvin, Holland, MI, United States  
 Srinivasa, Ramanujan, Holland, MI, United States  
 PA Gentex Corporation, Zeeland, MI, United States (U.S. corporation)  
 PI US 6193912 B1 20010227  
 AI US 1998-34531 19980303 (9)  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Tucker, Philip  
 LREP Rees, Brian J. Factor and Partners, LLC  
 CLMN Number of Claims: 39  
 ECL Exemplary Claim: 1  
 DRWN 7 Drawing Figure(s); 6 Drawing Page(s)  
 LN.CNT 1372  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 AB Electrochromic compounds capable of reversibly attenuating the transmittance of the near infrared portion of the electromagnetic spectrum are provided. These compounds exhibit an energy difference between the singly occupied molecular orbital (SOMO) energy and the highest doubly occupied molecular orbital (HDOMO) energy ( $E_{\text{sub.SOMO}} - E_{\text{sub.HDOMO}}$ ) of less than about 3.6 eV. In addition, these compounds have a transition moment of the configuration made up of the HDOMO and SOMO that is "long axis polarized".

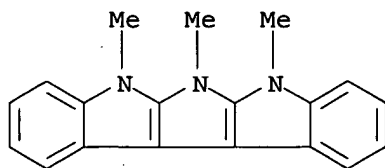
CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 241154-47-2 241154-48-3 241154-49-4  
 (near IR-absorbing electrochromic compds. and devices employing them)  
 RN 241154-47-2 USPATFULL  
 CN Furo[2,3-b:5,4-b']diindole, 5,7-dihydro-5,7-dimethyl- (9CI) (CA INDEX NAME)



RN 241154-48-3 USPATFULL  
 CN Thieno[2,3-b:5,4-b']diindole, 5,7-dihydro-5,7-dimethyl- (9CI) (CA INDEX NAME)



RN 241154-49-4 USPATFULL  
 CN 5H-Pyrrolo[2,3-b:5,4-b']diindole, 6,7-dihydro-5,6,7-trimethyl- (9CI) (CA INDEX NAME)



=> fil hcaplus

FILE 'HCAPLUS' ENTERED AT 07:36:13 ON 24 FEB 2005

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FILE COVERS 1907 - 24 Feb 2005 VOL 142 ISS 9

FILE LAST UPDATED: 23 Feb 2005 (20050223/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> => d all hitstr tot 159

L59 ANSWER 1 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:182522 HCAPLUS

DN 140:235602

ED Entered STN: 05 Mar 2004

TI Preparation of indolo[2,3-b]carbazole analogs as chemotherapeutic and chemopreventive agents

IN Jong, Ling; Chao, Wan-Ru

PA SRI International, USA

SO U.S. Pat. Appl. Publ., 42 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM A61K031-541

ICS A61K031-675; A61K031-5377; A61K031-496; A61K031-454; A61K031-407; C07D487-02

NCL 514080000; 514410000; 548414000; 548418000; 544060000; 544142000; 544372000; 546199000

CC 27-11 (Heterocyclic Compounds (One Hetero Atom))

Section cross-reference(s): 1, 63

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004043965	A1	20040304	US 2002-224979	20020820 <--
	US 6800655	B2	20041005		
	WO 2004018475	A2	20040304	WO 2003-US25772	20030815 <--
	WO 2004018475	A3	20040401		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2004157906

A1

20040812

US 2004-772036

20040203 &lt;--

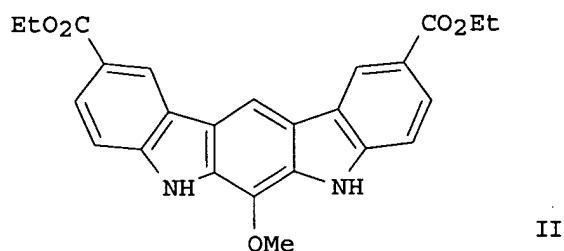
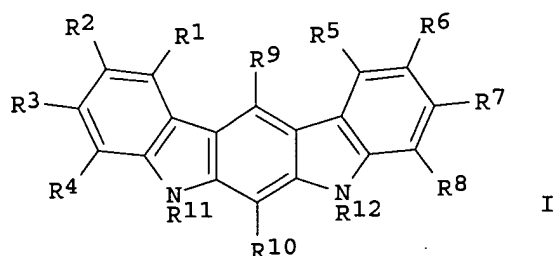
PRAI US 2002-224979

A

20020820 &lt;--

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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	ICS	A61K031-675; A61K031-5377; A61K031-496; A61K031-454; A61K031-407; C07D487-02
	NCL	514080000; 514410000; 548414000; 548418000; 544060000; 544142000; 544372000; 546199000
US 2004043965	ECLA	C07D209/08; C07D209/42; C07D487/04+209A+209A <--
US 2004157906	ECLA	C07D209/08; C07D209/42; C07D487/04+209A+209A <--
OS	MARPAT 140:235602	
GI		



AB Title compds., I [wherein R1, R2, R3, R4, R5, R6, R7, R8, R9, R10 = independently H, alkyl, alkenyl, alkynyl, aryl, alkoxy, arylcarbonyl, etc.; R11, R12 = independently H, alkoxycarbonyl, (un)substituted alkyl; with provisos; and pharmaceutically acceptable carriers thereof] and analogs of indole-3-carbinol metabolites (3 addnl. Markush structures), were prepared as chemotherapeutic and chemopreventive agents. For example, reaction of 3,3'-methylenebis[5-bromo-1H-indole] with Et chloroformate (92%), followed by methylation (91%) with MeI, substitution with Et chloroformate again (93%) and BOC-deprotection (97%), gave final product II. II was tested for growth inhibition, estrogenic and antiestrogenic activity in breast cancer lines, such as MCF-7, MDA-MB-231 and a tamoxifen-resistant strain of MCF-7. II also showed growth inhibitory activity on ovarian cancer cell lines with 5.1  $\mu$ M (IC50) values for NIH-OVCAR-3 and 4.0  $\mu$ M (IC50) for SKOV-3. Thus, title compds. and their pharmaceutical compns. are useful as chemotherapeutic and chemopreventive agents for the treatment and prevention of cancers, such



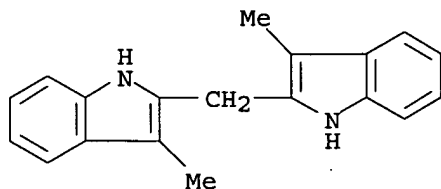
- as breast and ovarian cancer.
- ST **indolocarbazole** prepn antitumor estrogenic antiestrogenic;  
**indole** carbinol prepn antitumor
- IT Multidrug resistance  
(cancer; preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT Drug delivery systems  
(capsules; preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT Drug delivery systems  
(carriers; preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT Uterus, neoplasm  
(cervix; preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT Intestine, neoplasm  
(colon; preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT Uterus, neoplasm  
(endometrium; preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT Neoplasm  
(metastasis; preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT Drug delivery systems  
(oral; preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT Antitumor agents  
Antiviral agents  
Human  
Human papillomavirus  
Liver, neoplasm  
Lung, neoplasm  
Mammary gland, neoplasm  
Ovary, neoplasm  
Pancreas, neoplasm  
Prostate gland, neoplasm  
(preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT Estrogens  
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU  
(Therapeutic use); BIOL (Biological study); PREP (Preparation); USES  
(Uses)  
(preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for the treatment of  
estrogen-related diseases)
- IT Drug delivery systems  
(tablets; preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT Infection  
(viral, retroviral; preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)

- IT Infection  
(viral; preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT 666752-11-0P 666752-15-4P  
RL: PAC (Pharmacological activity); RCT (Reactant); SPN (Synthetic  
preparation); THU (Therapeutic use); BIOL (Biological study); PREP  
(Preparation); RACT (Reactant or reagent); USES (Uses)  
(preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT 36798-17-1P 112485-52-6P 114648-66-7P  
249762-98-9P 424838-57-3P 637774-61-9P 666752-03-0P  
666752-04-1P 666752-05-2P 666752-08-5P 666752-12-1P 666752-13-2P  
666752-16-5P 666752-17-6P 666752-22-3P 666752-27-8P  
666752-29-0P 666752-30-3P 666752-34-7P  
666752-35-8P 666752-38-1P 666752-41-6P  
666752-45-0P 666752-49-4P  
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU  
(Therapeutic use); BIOL (Biological study); PREP (Preparation); USES  
(Uses)  
(preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT 79-44-7, Dimethylcarbaryl chloride 83-34-1 108-24-7, Acetic acid  
anhydride 120-72-9, 1H-**Indole**, reactions 375-22-4,  
Heptafluorobutyric acid 541-41-3, Ethyl chloroformate 700-06-1, 1H-  
**Indole**-3-methanol 877-03-2 3770-50-1 5416-80-8 10075-50-0  
32996-16-0  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT 1968-05-4P 5030-96-6P 6967-71-1P 10075-48-6P 17826-09-4P  
18450-27-6P 24621-70-3P, 1H-**Indole**-2-methanol 26304-51-8P  
40015-10-9P 70070-22-3P 92557-51-2P 111296-90-3P  
666752-02-9P 666752-06-3P 666752-07-4P 666752-09-6P 666752-10-9P  
666752-14-3P 666752-18-7P 666752-19-8P 666752-20-1P  
666752-21-2P 666752-23-4P 666752-24-5P 666752-25-6P  
666752-26-7P 666752-28-9P 666752-31-4P 666752-32-5P  
666752-33-6P 666752-36-9P 666752-37-0P  
666752-39-2P 666752-40-5P 666752-42-7P  
666752-43-8P 666752-44-9P 666752-46-1P 666752-47-2P  
666752-48-3P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT 4111-54-0, Lithium diisopropylamide 38227-87-1, Lithium  
2,2,6,6-tetramethylpiperidide  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(preparation of **indolo[2,3-b]carbazole**  
analogs/metabolites as antitumor agents for chemotherapeutic and  
chemopreventive use)
- IT 36798-17-1P 112485-52-6P 249762-98-9P  
637774-61-9P 666752-22-3P 666752-29-0P  
666752-30-3P 666752-34-7P 666752-35-8P  
666752-38-1P 666752-41-6P  
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU  
(Therapeutic use); BIOL (Biological study); PREP (Preparation); USES  
(Uses)  
(preparation of **indolo[2,3-b]carbazole**

analogs/metabolites as antitumor agents for chemotherapeutic and chemopreventive use)

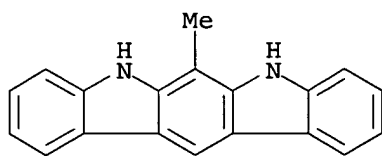
RN 36798-17-1 HCAPLUS

CN 1H-Indole, 2,2'-methylenebis[3-methyl- (9CI) (CA INDEX NAME)



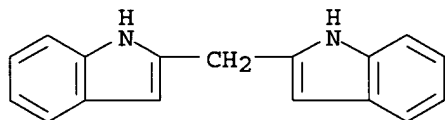
RN 112485-52-6 HCAPLUS

CN Indolo[2,3-b]carbazole, 5,7-dihydro-6-methyl- (6CI, 9CI) (CA INDEX NAME)



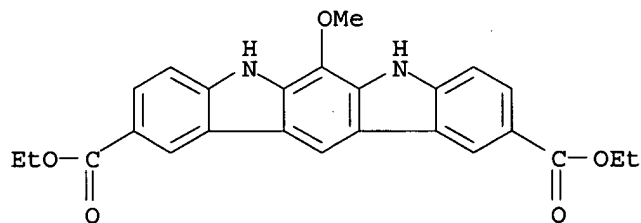
RN 249762-98-9 HCAPLUS

CN 1H-Indole, 2,2'-methylenebis- (9CI) (CA INDEX NAME)



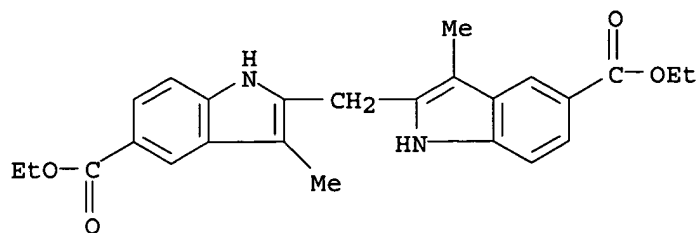
RN 637774-61-9 HCAPLUS

CN Indolo[2,3-b]carbazole-2,10-dicarboxylic acid, 5,7-dihydro-6-methoxy-, diethyl ester (9CI) (CA INDEX NAME)



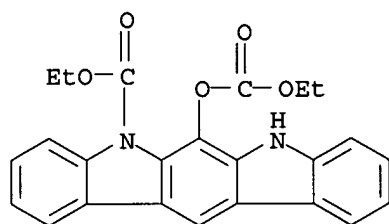
RN 666752-22-3 HCAPLUS

CN 1H-Indole-5-carboxylic acid, 2,2'-methylenebis[3-methyl-, diethyl ester (9CI) (CA INDEX NAME)



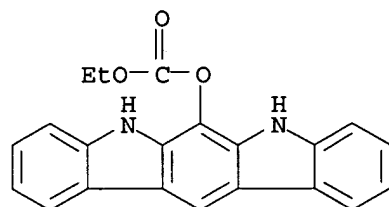
RN 666752-29-0 HCAPLUS

CN Indolo[2,3-b]carbazole-5(7H)-carboxylic acid, 6-[(ethoxycarbonyl)oxy]-, ethyl ester (9CI) (CA INDEX NAME)



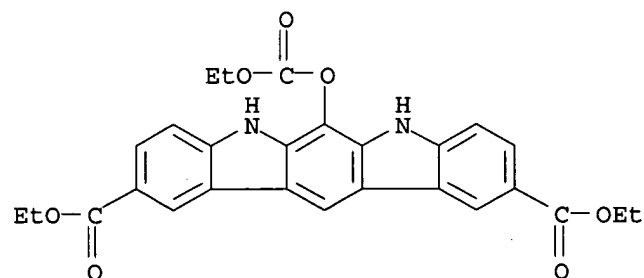
RN 666752-30-3 HCAPLUS

CN Carbonic acid, 5,7-dihydroindolo[2,3-b]carbazol-6-yl ethyl ester (9CI) (CA INDEX NAME)



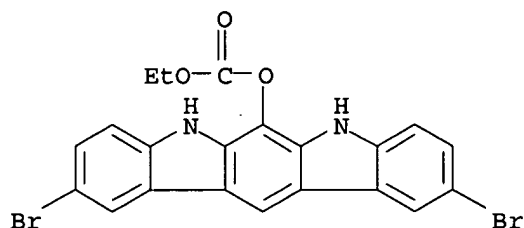
RN 666752-34-7 HCAPLUS

CN Indolo[2,3-b]carbazole-2,10-dicarboxylic acid, 6-[(ethoxycarbonyl)oxy]-5,7-dihydro-, diethyl ester (9CI) (CA INDEX NAME)



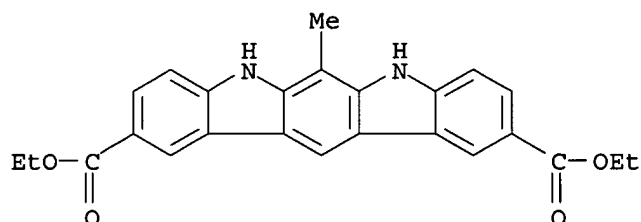
RN 666752-35-8 HCAPLUS

CN Carbonic acid, 2,10-dibromo-5,7-dihydroindolo[2,3-b]carbazol-6-yl ethyl ester (9CI) (CA INDEX NAME)



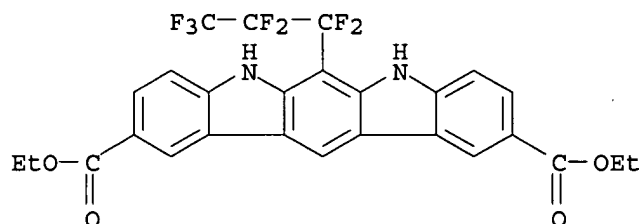
RN 666752-38-1 HCAPLUS

CN Indolo[2,3-b]carbazole-2,10-dicarboxylic acid, 5,7-dihydro-6-methyl-, diethyl ester (9CI) (CA INDEX NAME)



RN 666752-41-6 HCAPLUS

CN Indolo[2,3-b]carbazole-2,10-dicarboxylic acid, 6-(heptafluoropropyl)-5,7-dihydro-, diethyl ester (9CI) (CA INDEX NAME)



IT 111296-90-3P 666752-19-8P 666752-20-1P

666752-21-2P 666752-31-4P 666752-32-5P

666752-33-6P 666752-36-9P 666752-37-0P

666752-39-2P 666752-40-5P 666752-42-7P

666752-43-8P 666752-44-9P

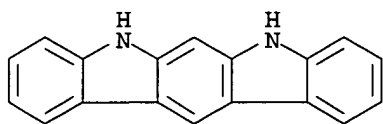
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of **indolo[2,3-b]carbazole**

analogs/metabolites as antitumor agents for chemotherapeutic and chemopreventive use)

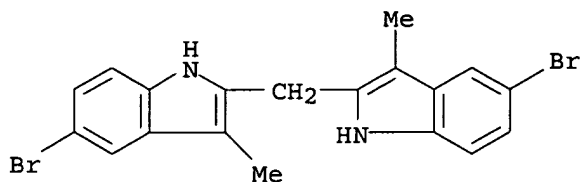
RN 111296-90-3 HCAPLUS

CN Indolo[2,3-b]carbazole, 5,7-dihydro- (6CI, 9CI) (CA INDEX NAME)



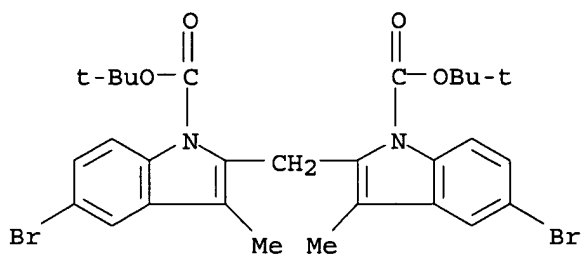
RN 666752-19-8 HCAPLUS

CN 1H-Indole, 2,2'-methylenebis[5-bromo-3-methyl- (9CI) (CA INDEX NAME)



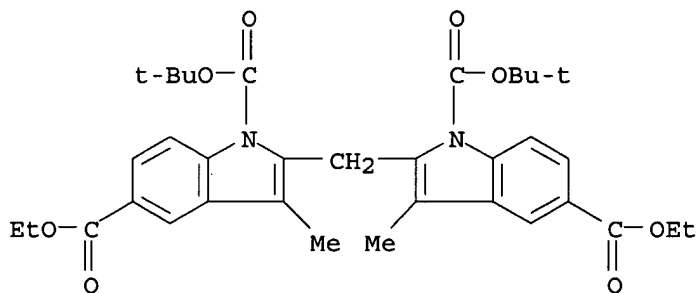
RN 666752-20-1 HCAPLUS

CN 1H-Indole-1-carboxylic acid, 2,2'-methylenebis[5-bromo-3-methyl-,  
bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



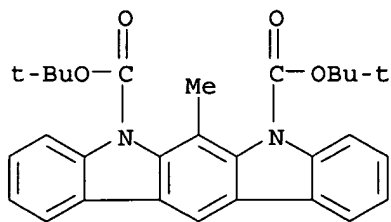
RN 666752-21-2 HCAPLUS

CN 1H-Indole-1,5-dicarboxylic acid, 2,2'-methylenebis[3-methyl-,  
1,1'-bis(1,1-dimethylethyl) 5,5'-diethyl ester (9CI) (CA INDEX NAME)



RN 666752-31-4 HCAPLUS

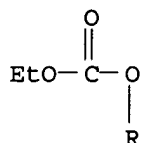
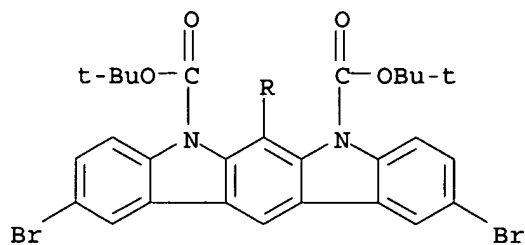
CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 6-methyl-,  
bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



RN 666752-32-5 HCAPLUS

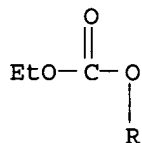
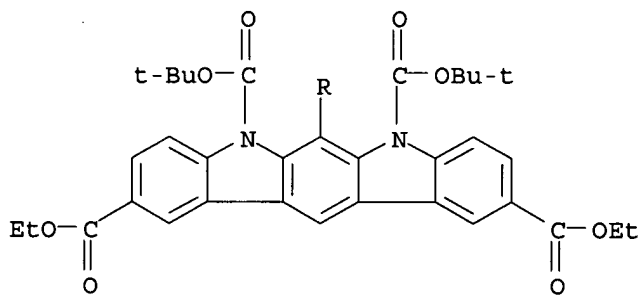
CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-  
[(ethoxycarbonyl)oxy]-, bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)

NAME)



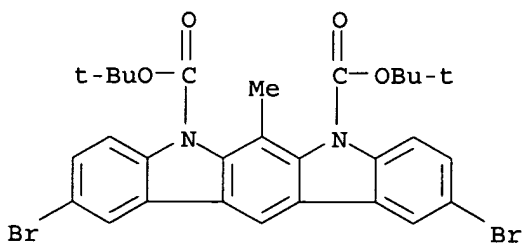
RN 666752-33-6 HCAPLUS

CN Indolo[2,3-b]carbazole-2,5,7,10-tetracarboxylic acid, 6-  
 [(ethoxycarbonyl)oxy]-, 5,7-bis(1,1-dimethylethyl) 2,10-diethyl ester  
 (9CI) (CA INDEX NAME)

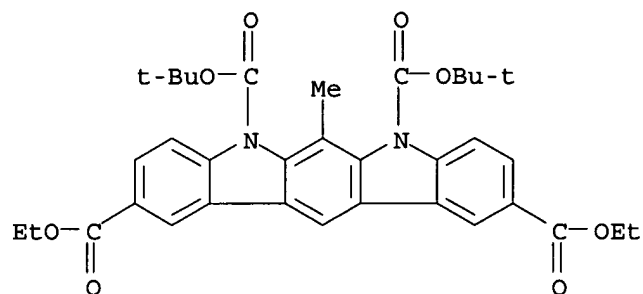


RN 666752-36-9 HCAPLUS

CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-methyl-,  
 bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)

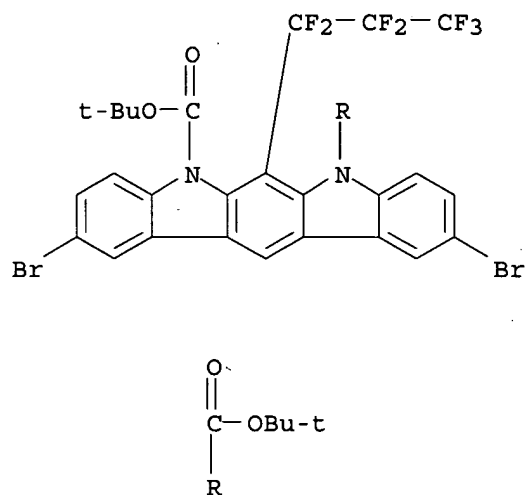


RN 666752-37-0 HCAPLUS

CN Indolo[2,3-b]carbazole-2,5,7,10-tetracarboxylic acid, 6-methyl-,  
5,7-bis(1,1-dimethylethyl) 2,10-diethyl ester (9CI) (CA INDEX NAME)

RN 666752-39-2 HCAPLUS

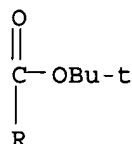
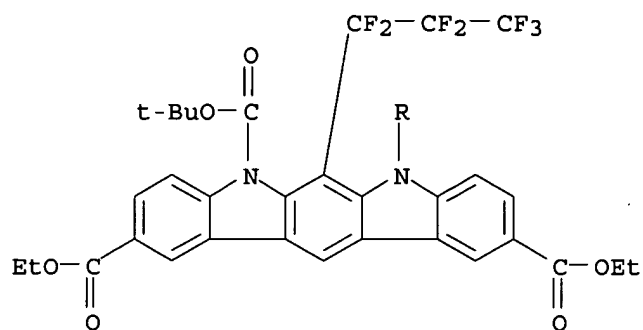
CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-(heptafluoropropyl)-, bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



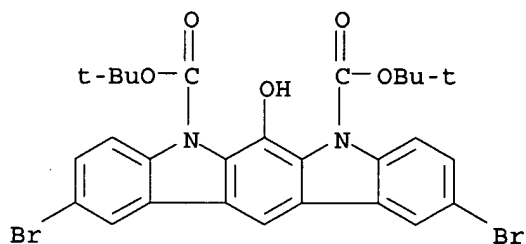
RN 666752-40-5 HCAPLUS

CN Indolo[2,3-b]carbazole-2,5,7,10-tetracarboxylic acid, 6-(heptafluoropropyl)-, 5,7-bis(1,1-dimethylethyl) 2,10-diethyl ester (9CI)  
(CA INDEX NAME)

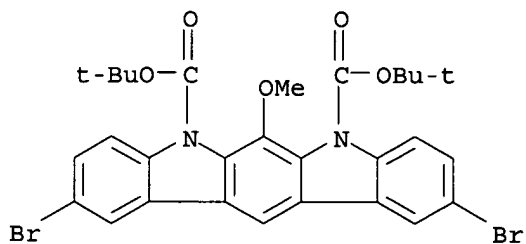




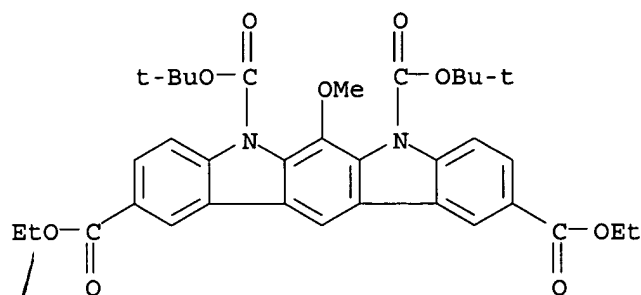
RN 666752-42-7 HCAPLUS  
 CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-hydroxy-,  
 bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



RN 666752-43-8 HCAPLUS  
 CN Indolo[2,3-b]carbazole-5,7-dicarboxylic acid, 2,10-dibromo-6-methoxy-,  
 bis(1,1-dimethylethyl) ester (9CI) (CA INDEX NAME)



RN 666752-44-9 HCAPLUS  
 CN Indolo[2,3-b]carbazole-2,5,7,10-tetracarboxylic acid, 6-methoxy-,  
 5,7-bis(1,1-dimethylethyl) 2,10-diethyl ester (9CI) (CA INDEX NAME)



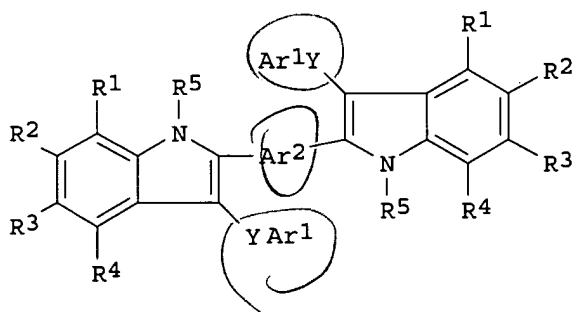
L59 ANSWER 2 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2004:59621 HCAPLUS  
 DN 140:136161  
 ED Entered STN: 23 Jan 2004  
 TI Blue-emitting organic electroluminescent devices based on indole derivatives  
 IN Lin, Tung-shen  
 PA Lightronik Technology Inc., Taiwan  
 SO U.S. Pat. Appl. Publ., 26 pp.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM H05B033-12  
 NCL 428690000; 313504000; 313506000; 428917000  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 22, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004013903	A1	20040122	US 2002-197825	20020719 <--
	US 6790539	B2	20040914		
PRAI	US 2002-197825		20020719	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2004013903	ICM	H05B033-12
	NCL	428690000; 313504000; 313506000; 428917000
US 2004013903	ECLA	C09K011/06; H01L051/30H8; H05B033/14
OS	MARPAT 140:136161	
GI		



AB Organic electroluminescent devices are described which comprise an anode; a cathode; and  $\geq 1$  organic thin film layers including a light emitting

layer adjacent to the anode and the cathode, where  $\geq 1$  of the organic thin film layers contains a compound represented by formula (I) where Ar1 and Ar2 represent a substituted or unsubstituted aromatic hydrocarbon group, or a substituted or unsubstituted aromatic heterocyclic group; Y represents a single bound or methylene group; R1-4 represent independently a hydrogen, a halogen, a cyano group, a substituted amino group, a substituted alkoxy group, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aromatic hydrocarbon group, or a substituted or unsubstituted aromatic heterocyclic group; any 2 of R1 to R4 may form a ring; and R5 represents a substituted or unsubstituted alkyl group, a substituted or unsubstituted aromatic hydrocarbon group, or a substituted or unsubstituted aromatic heterocyclic group.

ST blue org electroluminescent device indole deriv OLED

IT Electroluminescent devices

(blue-emitting; blue-emitting organic electroluminescent devices based on indole derivs.)

IT 649728-50-7P 649728-51-8P 649728-52-9P 649728-53-0P

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)

(blue-emitting organic electroluminescent devices based on indole derivs.)

IT 1662-01-7 2085-33-8, Alq3

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(electron-transporting layer; blue-emitting organic electroluminescent devices based on indole derivs.)

IT 123847-85-8, NPB

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(hole-transporting layer; blue-emitting organic electroluminescent devices based on indole derivs.)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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- (2) Anon; JP 20-01118683 A 2001 HCAPLUS
- (3) Anon; JP 20-01291590 A 2001 HCAPLUS
- (4) Conley; US 20030180573 A1 2003
- (5) Kawamura; US 6074734 A 2000 HCAPLUS
- (6) Lin; US 20030165712 A1 2003 HCAPLUS
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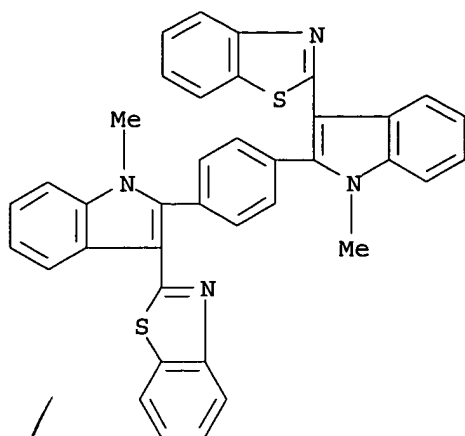
IT 649728-50-7P

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)

(blue-emitting organic electroluminescent devices based on indole derivs.)

RN 649728-50-7 HCAPLUS

CN Benzothiazole, 2,2'-[1,4-phenylenebis(1-methyl-1H-indole-2,3-diyl)]bis-(9CI) (CA INDEX NAME)



L59 ANSWER 3 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2003:246684 HCAPLUS  
 DN 139:133484  
 ED Entered STN: 31 Mar 2003  
 TI Alkylation of 6-(3-indolyl)indolo[2,3-b]carbazole  
 AU Yudina, L. N.; Lazhko, E. I.; Korolev, A. M.; Preobrazhenskaya, M. N.  
 CS Scientific-Research Institute of New Antibiotics, Russian Academy of  
 Medical Sciences, Moscow, 119867, Russia  
 SO Chemistry of Heterocyclic Compounds (New York, NY, United  
 States) (Translation of Khimiya Geterotsiklicheskikh Soedinenii) (  
 2002), 38(10), 1200-1204  
 CODEN: CHCCAL; ISSN: 0009-3122  
 PB Kluwer Academic/Consultants Bureau  
 DT Journal  
 LA English  
 CC 28-2 (Heterocyclic Compounds (More Than One Hetero Atom))  
 OS CASREACT 139:133484  
 AB The methylation and allylation of 6-(3-indolyl)indolo[2,3-b]carbazole were  
 studied, and its tri-Me and mono-, di-, and triallyl derivs. were  
 obtained.  
 ST indolyl indolocarbazole methylation; allylation indolyl indolocarbazole;  
 allyl indolyl indolocarbazole prepn; methyl indolyl indolocarbazole prepn  
 IT Alkylation  
 (alkylation of 6-(3-indolyl)indolo[2,3-b]carbazole)  
 IT Heterocyclic compounds  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (nitrogen, aromatic; alkylation of 6-(3-indolyl)indolo[2,3-b]carbazole)  
 IT 106-95-6, Allyl bromide, reactions 258329-25-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (alkylation of 6-(3-indolyl)indolo[2,3-b]carbazole)  
 IT 567626-01-1P 567626-02-2P 567626-03-3P 567626-04-4P  
 567626-05-5P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (alkylation of 6-(3-indolyl)indolo[2,3-b]carbazole)  
 RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE  
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 (2) Fernandez-Salguero, P; Science 1995, V268, P722 HCAPLUS  
 (3) Gillner, M; Mol Pharmacol 1993, V44, P336 HCAPLUS  
 (4) Goekjian, P; Cur Med Chem 1999, V6, P877 HCAPLUS  
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 (6) Hunig, S; Lieb Ann Chem 1976, P1090



unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)

(supercrit. fluid chromatog. as basis for identification and quant. determination of indol-3-ylmethyl oligomers and ascorbigens)

IT 499-30-9, Gluconasturtiin 499-37-6, Glucoalyssin 4356-52-9, Indol-3-ylmethylglucosinolate 5187-84-8, Neoglucobrassicin 8075-98-7D, Ascorbigen, derivs. 19041-09-9, Gluconapin 19041-10-2, Glucobrassicinapin 21414-41-5, Glucoraphanin 83327-20-2, 4-Hydroxyglucobrassicin 83327-21-3, 4-Methoxyglucobrassicin 96888-15-2, 4-Methoxyascorbigen  
RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence)

(supercrit. fluid chromatog. as basis for identification and quant. determination of indol-3-ylmethyl oligomers and ascorbigens)

IT 249762-98-9P

RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)

(supercrit. fluid chromatog. as basis for identification and quant. determination of indol-3-ylmethyl oligomers and ascorbigens)

IT 50-81-7, Ascorbic acid, analysis 700-06-1, Indol-3-ylmethanol  
RL: ANT (Analyte); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)

(supercrit. fluid chromatog. as basis for identification and quant. determination of indol-3-ylmethyl oligomers and ascorbigens)

IT 518-06-9P 137460-69-6P 137460-73-2P 138250-72-3P 299403-17-1P 299403-19-3P 299403-20-6P

RL: ANT (Analyte); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation)

(supercrit. fluid chromatog. as basis for identification and quant. determination of indol-3-ylmethyl oligomers and ascorbigens)

RE.CNT 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Agerbirk, N; J Agric Food Chem 1998, V46(4), P1563 HCAPLUS
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- (3) Aleksandrova, L; Food Chem 1992, V45, P61 HCAPLUS
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- (5) Bille, N; Zeitschr Tierphysiol Tierernahrung Futtermittelkd 1983, V49, P195 HCAPLUS
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Glucosinolates in Relation to Unsolved Problems with the Quality of Double  
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- (43) Wallig, M; Food Chem Toxicol 1998, V36, P365 HCAPLUS

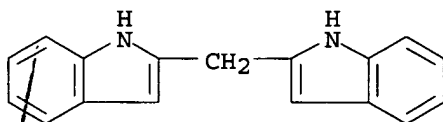
IT 249762-98-9P

RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study,  
unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL  
(Biological study); OCCU (Occurrence); PREP (Preparation)

(supercrit. fluid chromatog. as basis for identification and quant.  
determination of indol-3-ylmethyl oligomers and ascorbigens)

RN 249762-98-9 HCAPLUS

CN 1H-Indole, 2,2'-methylenebis- (9CI) (CA INDEX NAME)



L59 ANSWER 5 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1999:723034 HCAPLUS

DN 131:336939

ED Entered STN: 12 Nov 1999

TI Indole derivatives and their use in the treatment of malignant and other  
diseases caused by pathological cell proliferation

IN Mahboobi, Siavosh; Kuhr, Sabine; Pongratz, Herwig; Popp, Alfred; Hufsky,  
Harald; Bohmer, Frank-d; Teller, Steffen; Uecker, Andrea; Beckers, Thomas

PA Asta Medica Aktiengesellschaft, Germany

SO PCT Int. Appl., 62 pp.

CODEN: PIXXD2

DT Patent

LA German

IC ICM C07D471-00

CC 27-11 (Heterocyclic Compounds (One Hetero Atom))

Section cross-reference(s): 1, 7

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9957117	A2	19991111	WO 1999-DE1214	19990422 <--
	WO 9957117	A3	20010412		
	W: AU, BG, BR, BY, CA, CN, CZ, EE, GE, HR, HU, ID, IL, IN, IS, JP, KG, KR, KZ, LT, LV, MK, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR,				

UA, UZ, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,  
 PT, SE

DE 19838506	A1	19991111	DE 1998-19838506	19980825 <--
DE 19838506	C2	20000831		
CA 2330756	AA	19991111	CA 1999-2330756	19990422 <--
AU 9944975	A1	19991123	AU 1999-44975	19990422 <--
AU 752464	B2	20020919		
BR 9911017	A	20010206	BR 1999-11017	19990422 <--
EP 1109785	A2	20010627	EP 1999-927711	19990422 <--
EP 1109785	B1	20030102		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO

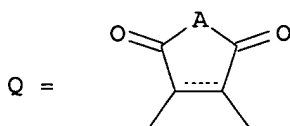
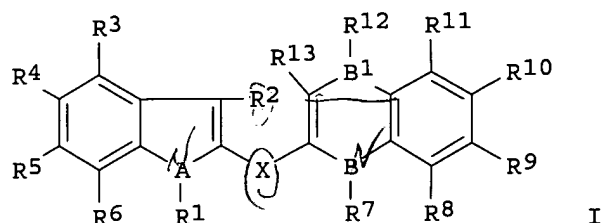
TR 200003206	T2	20010723	TR 2000-200003206	19990422 <--
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RU 2225396	C2	20040310	RU 2000-130705	19990422 <--
✓ US 6407102	B1	20020618	US 1999-305115	19990504 <--
NZ 507735	A	20030429	NZ 2000-507735	20001024 <--
NO 2000005448	A	20001027	NO 2000-5448	20001027 <--
ZA 2000006152	A	20020508	ZA 2000-6152	20001031 <--
BG 104996	A	20010731	BG 2000-104996	20001128 <--
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US 6812243	B2	20041102		

PRAI DE 1998-19819835	A	19980504	<--
DE 1998-19838506	A	19980825	<--
WO 1999-DE1214	W	19990422	<--
US 1999-305115	A3	19990504	<--

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
WO 9957117	ICM	C07D471-00	
WO 9957117	ECLA	C07D209/14; C07D333/56; C07D401/14R+215+209C+207; C07D403/14+209C+209C+207; C07D403/14R+209C+20; C07D405/06+307+209C; C07D409/06+333+209C; C07D471/22+245D+221C+221C+209B+209B+209B+209B; C07D087/14+209A+209A+209A; C07D487/22+245D+241D+209B+209B+209B+209B; C07D491/14+307A+209A+209A	<--
DE 19838506	ECLA	C07D209/14; C07D333/56; C07D401/14R+215+209C+207; C07D403/14+209C+209C+207; C07D403/14R+209C+20; C07D405/06+307+209C; C07D409/06+333+209C; C07D471/22+245D+221C+221C+209B+209B+209B+209B; C07D087/14+209A+209A+209A; C07D487/22+245D+241D+209B+209B+209B+209B; C07D491/14+307A+209A+209A	<--
US 6407102	ECLA	C07D209/14; C07D333/56; C07D401/14R+215+209C+207; C07D403/14+209C+209C+207; C07D403/14R+209C+20; C07D405/06+307+209C; C07D409/06+333+209C; C07D471/22+245D+221C+221C+209B+209B+209B+209B; C07D087/14+209A+209A+209A; C07D487/22+245D+241D+209B+209B+209B+209B; C07D491/14+307A+209A+209A	<--
US 2003008898	ECLA	C07D209/14; C07D333/56; C07D401/14R+215+209C+207; C07D403/14+209C+209C+207; C07D403/14R+209C+20; C07D405/06+307+209C; C07D409/06+333+209C; C07D471/22+245D+221C+221C+209B+209B+209B+209B; C07D087/14+209A+209A+209A; C07D487/22+245D+241D+209B+209B+209B+209B; C07D491/14+307A+209A+209A	<--
OS	MARPAT 131:336939		
GI			





- AB Indole derivs. I [A = N, O, S; B, B1 = C, N, O, S, bond; X = (un)substituted alkylene, Q; R1, R7, R12 = H, alkyl, aminoalkyl, PhSO<sub>2</sub>, alkylsilylmethoxymethyl, carbohydrate; R3-R6, R8-R11 = H, (un)substituted alkyl, alkoxy, acyloxy, NO<sub>2</sub>, halogen; R2R13 = bond, CO, Q; R2, R13 = H, QR14; R14 = halogen, substituted alkylamino] were prepared for use as tyrosine kinase inhibitors in treating malignant and other diseases caused by pathol. cell proliferation. Thus, 1-phenylsulfonylindole was added to 1-phenylsulfonyl-2-indolecarboxaldehyde to give bis(1-phenylsulfonylindol-2-yl)methanol which was oxidized to the ketone and desulfonylated to give bis(2-indolyl)methanone. This compound had an IC<sub>50</sub> of 1 μM for inhibition of tyrosine phosphorylation.
- ST diindolylmethane prepn tyrosine kinase inhibitor; indole deriv prepn tyrosine kinase inhibitor
- IT 249762-76-3P  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
 (preparation of bis(indolyl)methane derivs. as tyrosine kinase inhibitors)
- IT 200706-56-5P 249762-41-2P 249762-42-3P 249762-47-8P 249762-62-7P  
 249762-64-9P 249762-67-2P 249762-72-9P 249762-74-1P 249762-75-2P  
 249762-78-5P  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (preparation of bis(indolyl)methane derivs. as tyrosine kinase inhibitors)
- IT 80449-02-1, Tyrosine kinase  
 RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
 (preparation of bis(indolyl)methane derivs. as tyrosine kinase inhibitors)
- IT 818-38-2, Diethyl glutarate 1122-10-7, Dibromomaleimide 40899-71-6, 1-Phenylsulfonylindole 80360-23-2, 1-Phenylsulfonylindole-2-carboxaldehyde 82185-43-1, N-Trimethylsilyl-o-toluidine 96668-28-9 153432-70-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of bis(indolyl)methane derivs. as tyrosine kinase inhibitors)
- IT 41895-52-7P 249762-27-4P 249762-28-5P 249762-29-6P 249762-30-9P  
 249762-31-0P 249762-32-1P 249762-33-2P 249762-34-3P 249762-35-4P  
 249762-36-5P 249762-37-6P 249762-38-7P 249762-39-8P 249762-40-1P  
 249762-43-4P 249762-44-5P 249762-46-7P 249762-48-9P 249762-50-3P

249762-94-5P 249762-95-6P 249762-96-7P 249762-97-8P 249763-00-6P  
 249763-03-9P 249763-07-3P 249763-14-2P 249763-16-4P 249763-21-1P  
 249763-31-3P 249763-32-4P 249763-33-5P 249763-34-6P 249763-35-7P  
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 249763-41-5P 249765-09-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of bis(indolyl)methane derivs. as tyrosine kinase inhibitors)

IT 65610-73-3P **249762-98-9P**

RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use);  
 BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent);  
 USES (Uses)

(preparation of bis(indolyl)methane derivs. as tyrosine kinase inhibitors)

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 249764-19-0P

RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of bis(indolyl)methane derivs. as tyrosine kinase inhibitors)

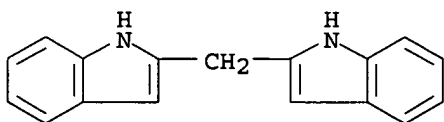
IT **249762-98-9P**

RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use);  
 BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent);  
 USES (Uses)

(preparation of bis(indolyl)methane derivs. as tyrosine kinase inhibitors)

RN 249762-98-9 HCAPLUS

CN 1H-Indole, 2,2'-methylenebis- (9CI) (CA INDEX NAME)



ED Entered STN: 07 Oct 1999  
TI Homoarcyriaflavin: Synthesis of Ring-Expanded Arcyriaflavin Analogues  
AU Mahboobi, Siavosh; Burgemeister, Thomas; Dove, Stefan; Kuhr, Sabine; Popp, Alfred  
CS Faculty of Chemistry and Pharmacy, University Regensburg, Regensburg, D-93040, Germany  
SO Journal of Organic Chemistry (1999), 64(22), 8130-8137  
CODEN: JOCEAH; ISSN: 0022-3263  
PB American Chemical Society  
DT Journal  
LA English  
CC 31-6 (Alkaloids)  
Section cross-reference(s): 22, 75  
AB The construction of the ring-expanded carbazole system, forming arcyriaflavin homologues, is efficiently accomplished by the reaction of 2,2'-bridged bis-indoles with 3,4-dibromo-2,5-dihydro-1H-2,5-pyrroledione derivs. under Grignard conditions. A ring size of up to nine members in the central ring is achievable. Substitutions either at the indole system or at the imide-N are also possible. The conformation of homoarcyriaflavins as a cross-link between the rigid arcyriaflavins and the flexible arcyriarubins was investigated by NMR, X-ray, and semiempiric quantum chemical calcn. methods.  
ST homoarcyriaflavin prepn crystal structure; arcyriaflavin ring expanded conformation  
IT Crystal structure  
(of homoarcyriaflavin)  
IT AM1 MO (molecular orbital)  
Conformation  
(synthesis of ring-expanded arcyriaflavin analogs)  
IT 249763-11-9P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(crystal structure; synthesis of ring-expanded arcyriaflavin analogs)  
IT 123-25-1, Diethyl succinate 818-38-2 1122-10-7 3005-27-4  
4584-46-7, 1-Chloro-2-(N,N-dimethylamino)ethane hydrochloride 40899-71-6  
56995-12-1 80360-23-2 82185-43-1 102147-52-4 251454-22-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(synthesis of ring-expanded arcyriaflavin analogs)  
IT 144445-47-6P 200706-56-5P 249762-27-4P 249762-29-6P 249762-39-8P  
249762-40-1P 249762-41-2P 249762-94-5P 249762-96-7P  
**249762-98-9P** 249762-99-0P 249763-00-6P 249763-03-9P  
249763-04-0P 249763-07-3P 249763-08-4P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(synthesis of ring-expanded arcyriaflavin analogs)  
IT 249763-05-1P 249763-06-2P 249763-09-5P 249763-10-8P 249763-12-0P  
249763-37-9P 251454-26-9P 251454-27-0P 251454-28-1P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(synthesis of ring-expanded arcyriaflavin analogs)  
RE.CNT 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE  
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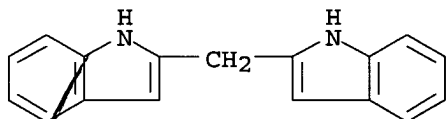
IT 249762-98-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(synthesis of ring-expanded arcyliaflavin analogs)

RN 249762-98-9 HCAPLUS

CN 1H-Indole, 2,2'-methylenebis- (9CI) (CA INDEX NAME)



L59 ANSWER 7 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1999:576995 HCAPLUS

DN 131:207009

ED Entered STN: 14 Sep 1999

TI Near infrared-absorbing electrochromic compounds and devices comprising same

IN Thieste, Dave; Byker, Harlan J.; Baumann, Kelvin; Srinivasa, Ramanujan

PA Gentex Corp., USA

SO PCT Int. Appl., 58 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C09K009-02

ICS G02F001-15

CC 74-9 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 28, 52, 72, 73

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9945081	A1	19990910	WO 1999-US4617	19990302 <--
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,				

TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU,  
 TJ, TM  
 RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,  
 ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG,  
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 CA 2322649 AA 19990910 CA 1999-2322649 19990302 <--  
 AU 9928897 A1 19990920 AU 1999-28897 19990302 <--  
 AU 754393 B2 20021114  
 EP 1060224 A1 20001220 EP 1999-909765 19990302 <--  
 R: DE, FR, GB, IE  
 PRAI US 1998-34531 A1 19980303 <--  
 WO 1999-US4617 W 19990302 <--

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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	ICS	G02F001-15
WO 9945081	ECLA	C09K009/02; G02F001/15V <--
US 6193912	ECLA	C09K009/02; G02F001/15V <--
OS	MARPAT 131:207009	
AB	Electrochromic media capable of reversibly attenuating the transmittance of the near IR portion of the electromagnetic spectrum are described which contain $\geq 1$ anodic compound which exhibits in its oxidized form an energy difference between the singly occupied MO (SOMO) energy and the highest doubly occupied MO (HDOMO) energy of less than about 3.6 eV., and a redox potential greater than about 90 mV. Preferably, the compds. have a transition moment of the configuration made up of the HDOMO and SOMO that is long axis polarized. Compds. for use in the media are also described, as are electrochromic devices employing the media. Application as electrochromic windows capable of improving energy efficiency by controlling the admission of solar IR radiation is indicated.	
ST	near IR absorbing electrochromic compd; window near IR absorbing electrochromic	
IT	Windows (electrochromic; near IR-absorbing electrochromic compds. and devices employing them)	
IT	Electrochromic devices (near IR-absorbing electrochromic compds. and devices employing them)	
IT	Electrochromic devices (windows; near IR-absorbing electrochromic compds. and devices employing them)	
IT	13050-56-1	15546-75-5, 5,10-Dihydro-5,10-dimethylphenazine 16012-31-0
	33131-88-3	57103-04-5 59996-00-8 173072-40-7 177180-45-9
	241154-34-7	241154-36-9 241154-37-0 241154-38-1 241154-39-2
	241154-40-5	241154-41-6 241154-42-7 241154-43-8 241154-44-9
	241154-45-0	241154-46-1 <b>241154-47-2 241154-48-3</b>
	241154-49-4	
	RL: DEV (Device component use); USES (Uses) (near IR-absorbing electrochromic compds. and devices employing them)	
IT	108-32-7, Propylene carbonate	
	RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses) (near IR-absorbing electrochromic compds. and devices employing them)	
IT	241154-31-4P	241154-32-5P 241154-33-6P 241154-35-8P
	RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses) (near IR-absorbing electrochromic compds. and devices employing them)	
IT	61-73-4, Methylene blue	74-88-4, reactions 258-72-0, Triphenodioxazine
	302-01-2, Hydrazine, reactions	1310-58-3, Potassium hydroxide, reactions
	2516-05-4, Methylene violet	7057-57-0, Meldola's Blue 7775-14-6, Sodium dithionite
	RL: RCT (Reactant); RACT (Reactant or reagent) (near IR-absorbing electrochromic compds. and devices employing them)	

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

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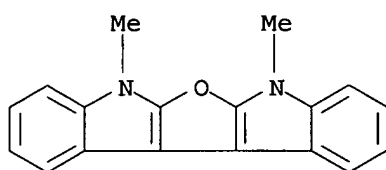
IT 241154-47-2 241154-48-3 241154-49-4

RL: DEV (Device component use); USES (Uses)

(near IR-absorbing electrochromic compds. and devices employing them)

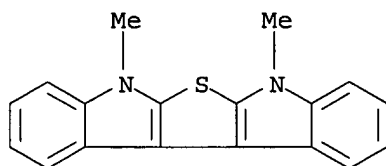
RN 241154-47-2 HCAPLUS

CN Furo[2,3-b:5,4-b']diindole, 5,7-dihydro-5,7-dimethyl- (9CI) (CA INDEX NAME)



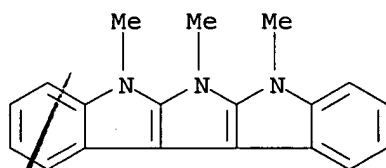
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CN Thieno[2,3-b:5,4-b']diindole, 5,7-dihydro-5,7-dimethyl- (9CI) (CA INDEX NAME)



RN 241154-49-4 HCAPLUS

CN 5H-Pyrrolo[2,3-b:5,4-b']diindole, 6,7-dihydro-5,6,7-trimethyl- (9CI) (CA INDEX NAME)



L59 ANSWER 8 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1998:775042 HCAPLUS

DN 130:110177

ED Entered STN: 11 Dec 1998

TI A convenient synthesis of 5,11-dihydro-5,11-dimethyl-6-trifluoromethylindolo[3,2-b]carbazole

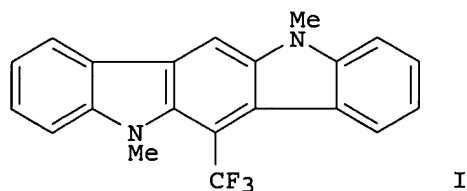
AU Biswas, K. M.; Mallik, Haimanti; Saha, Aparna

CS Department of Chemistry, University College of Science, Calcutta, 700 009, India

SO Indian Journal of Chemistry, Section B: Organic Chemistry Including Medicinal Chemistry (1998), 37B(9), 841-843

CODEN: IJSBDB; ISSN: 0376-4699

PB National Institute of Science Communication, CSIR  
 DT Journal  
 LA English  
 CC 28-2 (Heterocyclic Compounds (More Than One Hetero Atom))  
 OS CASREACT 130:110177  
 GI



AB On treatment with (F<sub>3</sub>CCO)<sub>2</sub>O both N,N'-dimethyl-3,3'-diindolylmethane and N-methylindole-3-methanol give the title indolocarbazole I along with three other products.

ST indolemethanol methyl cyclocondensation trifluoroacetic anhydride; diindolylmethane dimethyl cyclocondensation trifluoroacetic anhydride; indolocarbazole dihydrodimethyltrifluoromethyl prepn

IT Cyclocondensation reaction  
 (preparation of (trifluoromethyl)indolocarbazole derivative by cyclocondensation of trifluoroacetic anhydride with dimethyldiindolylmethane or methylindolemethanol)

IT 318-54-7P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (acylation product in reaction of trifluoroacetic anhydride with dimethyldiindolylmethane or methylindolemethanol)

IT 407-25-0, Trifluoroacetic anhydride 6965-44-2 31896-75-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of (trifluoromethyl)indolocarbazole derivative by cyclocondensation of trifluoroacetic anhydride with dimethyldiindolylmethane or methylindolemethanol)

IT 219701-20-9P 219701-21-0P 219701-22-1P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of (trifluoromethyl)indolocarbazole derivative by cyclocondensation of trifluoroacetic anhydride with dimethyldiindolylmethane or methylindolemethanol)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE

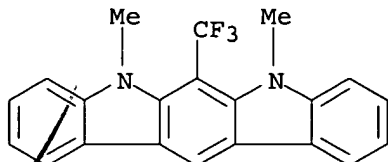
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IT 219701-22-1P

RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of (trifluoromethyl)indolocarbazole derivative by  
 cyclocondensation  
 of trifluoroacetic anhydride with dimethyldiindolylmethane or  
 methylindolemethanol)

RN 219701-22-1 HCAPLUS

CN Indolo[2,3-b]carbazole, 5,7-dihydro-5,7-dimethyl-6-(trifluoromethyl)-  
 (9CI) (CA INDEX NAME)



L59 ANSWER 9 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1998:348083 HCAPLUS

DN 129:95420

ED Entered STN: 10 Jun 1998

TI Transition metal complexes in organic synthesis. 44. Iron-mediated  
 synthesis of indolo[2,3-b]carbazole

AU Knolker, Hans-Joachim; Reddy, Kethiri R.

CS Institut fur Organische Chemie, Universitat Karlsruhe, Karlsruhe, D-76131,  
 Germany

SO Tetrahedron Letters (1998), 39(23), 4007-4008

CODEN: TELEAY; ISSN: 0040-4039

PB Elsevier Science Ltd.

DT Journal

LA English

CC 28-2 (Heterocyclic Compounds (More Than One Hetero Atom))

Section cross-reference(s): 29

AB A straightforward two-step synthesis of indolo[2,3-b]carbazole using a  
 double iron-mediated arylamine cyclization as the key-step is described.

ST indolocarbazole prepn iron mediated

IT 108-45-2, 1,3-Benzenediamine, reactions 33678-01-2

RL: RCT (Reactant); RACT (Reactant or reagent)

(iron-mediated preparation of indolo[2,3-b]carbazole)

IT 209627-88-3P 209627-89-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)

(iron-mediated preparation of indolo[2,3-b]carbazole)

IT 111296-90-3P

RL: SPN (Synthetic preparation); PREP (Preparation)

(iron-mediated preparation of indolo[2,3-b]carbazole)

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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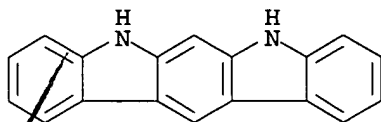
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 IT 111296-90-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (iron-mediated preparation of indolo[2,3-b]carbazole)  
 RN 111296-90-3 HCAPLUS  
 CN Indolo[2,3-b]carbazole, 5,7-dihydro- (6CI, 9CI) (CA INDEX NAME)



- L59 ANSWER 10 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1997:663860 HCAPLUS  
 DN 127:356217  
 ED Entered STN: 18 Oct 1997  
 TI Electrochemical and peroxidase O2-mediated oxidation of indole-3-acetic acid at physiological pH  
 AU Hu, Tao; Dryhurst, Glenn  
 CS Department of Chemistry and Biochemistry, University of Oklahoma, Norman, OK, 73019, USA  
 SO Journal of Electroanalytical Chemistry (1997), 432(1-2), 7-18  
 CODEN: JECHES; ISSN: 0368-1874  
 PB Elsevier  
 DT Journal  
 LA English  
 CC 6-1 (General Biochemistry)  
 Section cross-reference(s): 7, 26  
 AB Indole-3-acetic acid (IAA) or an oxidative metabolite is believed to be a growth hormone in plants. IAA is also found in the mammalian central nervous system although its biol. roles, if any, are presently unknown. In this investigation the electrochem. driven and peroxidase/O2-mediated oxidation chemical of IAA at physiol. pH has been studied with the primary goal of identifying the major reaction products. Based upon the nature of these products it has been concluded that, at pH 7.4, the anion of IAA is initially oxidized (one-electron) to an acetoxy radical that in part undergoes a second one-electron oxidation/decarboxylation to a carbocation precursor of 3-hydroxymethyl-2-oxindole (1), indole-3-carbinol (13) and 3-methylene-2-oxindole (3). Indole-3-carbinol (13) can be further oxidized (2e, 1H+) to the cation of 3-hydroxymethylene indolenine, the precursor of indole-3-aldehyde (2), 3-hydroxy-2-oxindole (8) and 3,3-dihydroxy-2-oxindole (12). Direct decarboxylation of the initial acetoxy radical yields a carbon-centered radical that rapidly dimerizes to a compound that is further oxidized to 3,3'-(1,2-ethanediyl)bis-1H-indol-2-ol (9) and thence 5,7,12,13-tetrahydro-oxepino[2,3-b:7,6-b']diindole (10). A parallel oxidation pathway involves oxidation of IAA to the cation of 3-methyleneindolenine carboxylic acid, the precursor of 2-oxindole-3-acetic

acid (11). Particularly when relatively high concns. of IAA are electrochem. oxidized for long periods of time, many addnl. oligomeric and polymeric products are formed. The peroxidase/O<sub>2</sub>-mediated oxidation of IAA at pH 7.4 gives exactly the same products formed in the electrochem. reaction suggesting that, in a chemical sense, the enzymic reaction follows the same pathways as the electrochem. reaction.

ST indole acetate oxidn electrochem peroxidase

IT Oxidation

(biol.; comparison of electrochem. and peroxidase O<sub>2</sub>-mediated oxidation of indole-3-acetic acid at physiol. pH)

IT Electric potential

Oxidation, electrochemical

(comparison of electrochem. and peroxidase O<sub>2</sub>-mediated oxidation of indole-3-acetic acid at physiol. pH)

IT 9003-99-0, Peroxidase

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)

(comparison of electrochem. and peroxidase O<sub>2</sub>-mediated oxidation of indole-3-acetic acid at physiol. pH)

IT 7782-44-7, Oxygen, biological studies

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(comparison of electrochem. and peroxidase O<sub>2</sub>-mediated oxidation of indole-3-acetic acid at physiol. pH)

IT 87-51-4, Indole-3-acetic acid, biological studies

RL: BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)

(comparison of electrochem. and peroxidase O<sub>2</sub>-mediated oxidation of indole-3-acetic acid at physiol. pH)

IT 61-71-2 487-89-8, Indole-3-aldehyde 700-06-1, Indole-3-carbinol

771-50-6, Indole-3-carboxylic acid 1861-29-6 2005-90-5 2971-31-5

68232-53-1 68232-54-2 68232-56-4 198485-76-6 **198485-77-7**

198485-78-8

RL: BSU (Biological study, unclassified); FMU (Formation, unclassified);

MFM (Metabolic formation); BIOL (Biological study); FORM (Formation,

nonpreparative)

(comparison of electrochem. and peroxidase O<sub>2</sub>-mediated oxidation of indole-3-acetic acid at physiol. pH)

RE.CNT 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD

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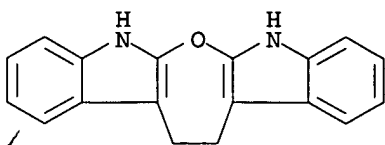
IT 198485-77-7

RL: BSU (Biological study, unclassified); FMU (Formation, unclassified);  
MFM (Metabolic formation); BIOL (Biological study); FORM (Formation,  
nonpreparative)

(comparison of electrochem. and peroxidase O<sub>2</sub>-mediated oxidation of  
indole-3-acetic acid at physiol. pH)

RN 198485-77-7 HCAPLUS

CN Oxepino[2,3-b:7,6-b']diindole, 5,7,12,13-tetrahydro- (9CI) (CA INDEX  
NAME)



L59 ANSWER 11 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1995:505286 HCAPLUS

DN 123:83146

ED Entered STN: 22 Apr 1995

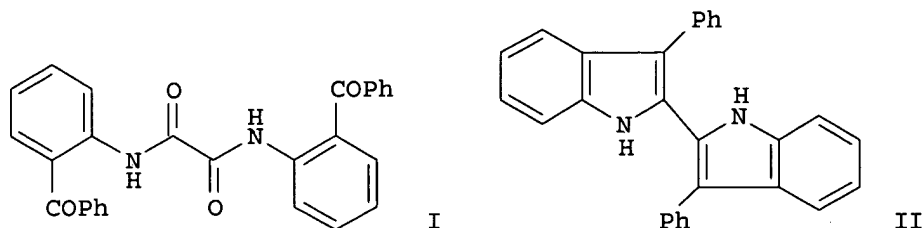
TI Titanium-induced zipper reactions

AU Fuerstner, Alois; Ptock, Arne; Weintritt, Holger; Goddard, Richard;  
Krueger, Carl

CS Max-Planck-Inst. Kohlenforschung, Muelheim an der Ruhr, D-45470, Germany  
SO Angewandte Chemie, International Edition in English (1995),  
34(6), 678-81

CODEN: ACIEAY; ISSN: 0570-0833

PB VCH  
 DT Journal  
 LA English  
 CC 27-11 (Heterocyclic Compounds (One Hetero Atom))  
 Section cross-reference(s): 75  
 OS CASREACT 123:83146  
 GI



AB A one step titanium-induced zipper reaction results in an amazing and unprecedented chemo- and regioselectivity in the reductive cyclization of polycarbonyl compds. Thus, polycarbonyl compound I was treated with  $\text{TiCl}_3$  and zinc dust under argon to give 80% biindole derivative II.

ST titanium induced zipper reaction; reductive cyclization regiochem  
 polycarbonyl compd; indole bi

IT Crystal structure  
 Ring closure and formation  
 (titanium-induced zipper reactions)

IT 164936-85-0P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (crystal structure; titanium-induced zipper reactions)

IT 7705-07-9, Titanium trichloride, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (titanium-induced zipper reactions)

IT 2516-96-3, 2-Chloro-5-nitrobenzoic acid 164936-78-1 164936-79-2  
 164936-80-5 164936-81-6 164936-82-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (titanium-induced zipper reactions)

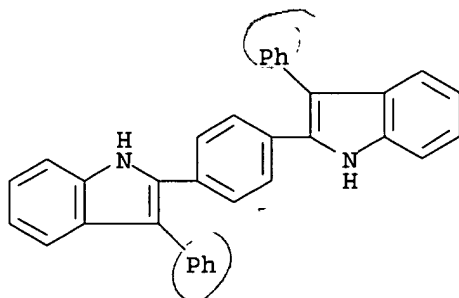
IT 41051-97-2P 41051-99-4P 41052-03-3P 41052-08-8P 84902-26-1P  
 164936-83-8P 164936-93-0P 164936-94-1P 164936-95-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (titanium-induced zipper reactions)

IT 164936-84-9P 164936-86-1P 164936-87-2P **164936-88-3P**  
**164936-89-4P** 164936-90-7P 164936-91-8P 164936-92-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (titanium-induced zipper reactions)

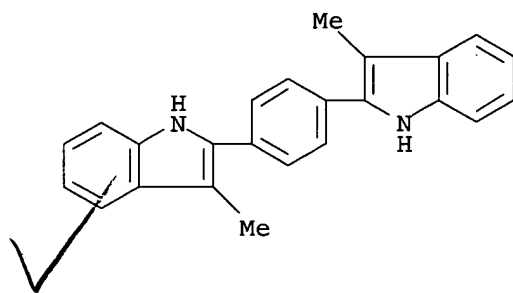
IT **164936-88-3P 164936-89-4P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (titanium-induced zipper reactions)

RN 164936-88-3 HCAPLUS

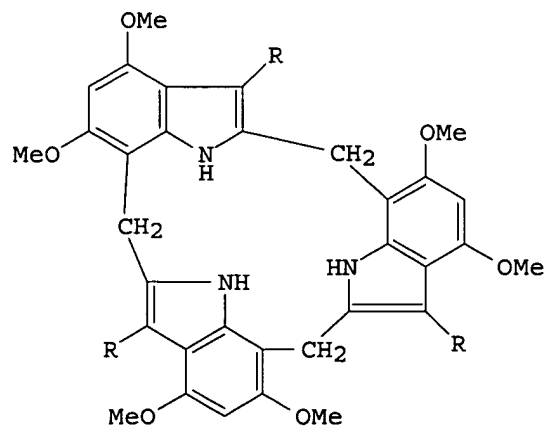
CN 1H-Indole, 2,2'-(1,4-phenylene)bis[3-phenyl- (9CI) (CA INDEX NAME)



RN 164936-89-4 HCAPLUS  
 CN 1H-Indole, 2,2'-(1,4-phenylene)bis[3-methyl- (9CI) (CA INDEX NAME)

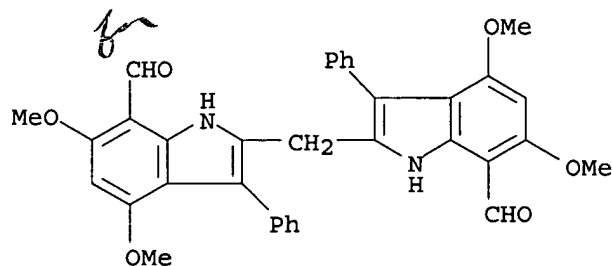


L59 ANSWER 12 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1993:671129 HCAPLUS  
 DN 119:271129  
 ED Entered STN: 25 Dec 1993  
 TI Calix[3]indoles, new macrocyclic tris(indolylmethylene) compounds with 2,7-linkages  
 AU Black, David S. C.; Bowyer, Michael C.; Kumar, Naresh; Mitchell, Peter S. R.  
 CS Sch. Chem., Univ. New South Wales, Kensington, 2033, Australia  
 SO Journal of the Chemical Society, Chemical Communications (1993), (10), 819-21  
 CODEN: JCCCAT; ISSN: 0022-4936  
 DT Journal  
 LA English  
 CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))  
 OS CASREACT 119:271129  
 GI



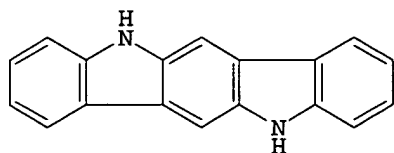
I

- AB A series of macrocyclic tris(indolylmethylene) compds., e.g. I [R = (un)substituted Ph], can be obtained from 7- or 2-(hydroxymethyl)indoles or from the combination of either an indole with a bis(hydroxymethyl)-2,7'-diindolylmethane or a bis(hydroxymethyl)indole with a 2,7'-diindolylmethane; an isomeric series can be obtained from the combination of an indole with a bis(hydroxymethyl)-2,2'-diindolylmethane.
- ST calixindole; trisindolylmethylene macrocycle; hydroxymethylindole prepn cyclization; indole hydroxymethyl cyclization
- IT Regiochemistry  
(for cyclization of (hydroxymethyl)indole derivs.)
- IT Cyclocondensation reaction  
(of (hydroxymethyl)indole derivs., calixindoles from)
- IT 74794-91-5 105776-29-2 151320-82-0  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(formylation of)
- IT 151320-91-1P 151320-92-2P 151320-93-3P 151320-96-6P 151320-99-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and acid-catalyzed cyclization of)
- IT 151321-08-3P 151321-12-9P 151321-13-0P 151321-14-1P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and cyclization of)
- IT 151321-03-8P 151321-04-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and formylation of)
- IT 100997-52-2P 151320-83-1P 151320-84-2P 151320-85-3P 151320-86-4P  
151320-87-5P 151320-88-6P 151320-89-7P 151320-90-0P 151321-05-0P  
151321-06-1P **151321-09-4P** 151321-10-7P 151321-11-8P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and reduction of)
- IT 151320-94-4P 151320-95-5P 151320-97-7P 151320-98-8P 151321-00-5P  
151321-01-6P 151321-02-7P 151321-07-2P 151321-15-2P 151321-16-3P  
151321-17-4P 151321-18-5P 151321-19-6P 151321-20-9P 151321-21-0P  
151321-22-1P 151321-23-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)
- IT **151321-09-4P**  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and reduction of)
- RN 151321-09-4 HCAPLUS
- CN 1H-Indole-7-carboxaldehyde, 2,2'-methylenebis[4,6-dimethoxy-3-phenyl-  
(9CI) (CA INDEX NAME)

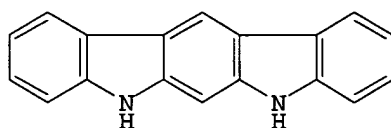


L59 ANSWER 13 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 1993:625858 HCAPLUS  
DN 119:225858

ED Entered STN: 27 Nov 1993  
 TI A direct synthesis of indolocarbazoles via new dinitroterphenyl precursors  
 AU Kistenmacher, Axel; Muellen, Klaus  
 CS Max-Planck-Inst. Polymerforsch., Mainz, 6500, Germany  
 SO Journal of Heterocyclic Chemistry (1992), 29(5), 1237-9  
 CODEN: JHTCAD; ISSN: 0022-152X  
 DT Journal  
 LA English  
 CC 28-2 (Heterocyclic Compounds (More Than One Hetero Atom))  
 GI

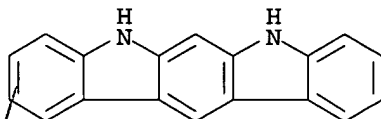


I



II

AB The two indolocarbazoles I and II were synthesized via the reductive ring closure of 1,4-dibromo-2,5-dinitrobenzene and 1,3-dibromo-4,6-dinitrobenzene, resp., with triethylphosphite as reducing agent in a high boiling solvent. The electrochem. behavior of the title systems is discussed.  
 ST indolocarbazole  
 IT 98-80-6, Phenylboronic acid  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (condensation of, with dibromodinitrobenzenes)  
 IT 18908-08-2 24239-82-5, 1,3-Dibromo-4,6-dinitrobenzene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (condensation of, with phenylboronic acid)  
 IT 6336-32-9P **111296-90-3P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 IT 150758-04-6P 150758-05-7P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation, cyclic voltammetry, and reductive ring closure of)  
 IT **111296-90-3P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 111296-90-3 HCAPLUS  
 CN Indolo[2,3-b]carbazole, 5,7-dihydro- (6CI, 9CI) (CA INDEX NAME)



✓ L59 ANSWER 14 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1987:617419 HCAPLUS  
 DN 107:217419  
 ED Entered STN: 12 Dec 1987  
 TI Reactivity and reaction paths of methyl-substituted bis(indolylcarbenium) ions  
 AU Pindur, Ulf; Mueller, Johann  
 CS Fachbereich Pharm., Univ. Mainz, Mainz, D-6500, Fed. Rep. Ger.  
 SO Journal of Heterocyclic Chemistry (1987), 24(1), 159-63

CODEN: JHTCAD; ISSN: 0022-152X

DT Journal  
 LA German  
 CC 27-11 (Heterocyclic Compounds (One Hetero Atom))  
 OS CASREACT 107:217419  
 GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB Me substituted bisindolylcarbenium ions I and II (R = H, Me) react with some O- and C-nucleophiles regioselectively. The cations II yield with hydroxide ions the tetraindolyl dimethyl ether III and with methoxide ions the bisindolylmethoxymethanes IV. I and II react with several methylindoles to give isomeric bis- and trisindolylmethanes. An electrophilic reactivity order of cations I and II can be derived from the exptl. results.

ST indolylmethyl ether; indolylmethoxymethane; indolylmethane bis tris; regioselectivity indolylcarbenium reaction nucleophile

IT Regiochemistry  
 (in reaction of indolylcarbenium ion with nucleophiles)

IT Nucleophiles  
 (regioselective reaction of, with indolylcarbenium ion)

IT 91455-01-5P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and regioselective reaction of, with 3-methylindole)

IT 548-12-9P **91455-03-7P** 110968-20-2P 110968-21-3P  
 110968-22-4P 110968-23-5P 110968-24-6P 110968-25-7P 110968-26-8P  
 110968-27-9P 110968-28-0P **110968-29-1P** 110993-07-2P  
 110993-08-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

IT 100237-91-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (regioselective reaction of, with 3-methylindole)

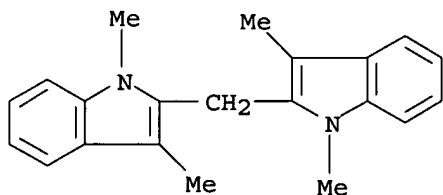
IT 83-34-1, 3-Methylindole 91-55-4, 2,3-Dimethylindole 95-20-5,  
 2-Methylindole 875-30-9, 1,3-Dimethylindole  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (regioselective reaction of, with indolylcarbenium ion)

IT 91454-98-7 91455-00-4  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (regioselective reaction of, with nucleophiles)

IT **91455-03-7P 110968-29-1P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

RN 91455-03-7 HCAPLUS

CN 1H-Indole, 2,2'-methylenebis[1,3-dimethyl- (9CI) (CA INDEX NAME)]

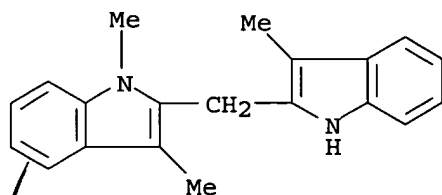


RN 110968-29-1 HCAPLUS

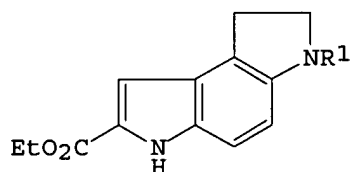
CN 1H-Indole, 1,3-dimethyl-2-[(3-methyl-1H-indol-2-yl)methyl]- (9CI) (CA



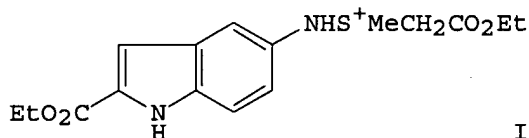
INDEX NAME)



L59 ANSWER 15 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1987:156119 HCAPLUS  
 DN 106:156119  
 ED Entered STN: 15 May 1987  
 TI Regioselective [2,3]-sigmatropic rearrangement to the pyrrolo[3,2-e]indole ring system of CC-1065  
 AU Warpehoski, Martha A.; Bradford, V. Susan  
 CS Upjohn Co., Kalamazoo, MI, 49001, USA  
 SO Tetrahedron Letters (1986), 27(24), 2735-8  
 CODEN: TELEAY; ISSN: 0040-4039  
 DT Journal  
 LA English  
 CC 26-6 (Biomolecules and Their Synthetic Analogs)  
 OS CASREACT 106:156119  
 GI



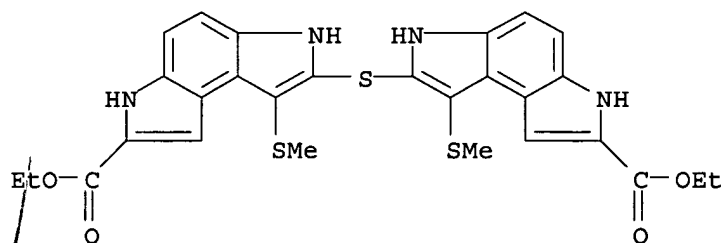
I



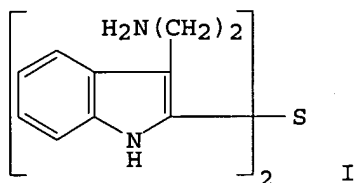
II

AB A short and efficient synthesis of the 1,2-dihydro-3H-pyrrolo[3,2-e]indole I (R = H, Ac) ring system of the antitumor antibiotic CC-1065 from Et 5-aminoindole-2-carboxylate was made possible by the inherent regioselectivity of the [2,3] sigmatropic rearrangement of the azasulfonium ylide II and a thiation-reduction sequence for oxindole to indoline conversion.  
 ST regioselective sigmatropic rearrangement pyrroloindole; antibiotic CC 1065  
 IT Regiochemistry  
 (of sigmatropic rearrangement of pyrroloindole ring system of antibiotic CC 1065)  
 IT Rearrangement  
 (sigmatropic, regiochem. of, in pyrroloindole ring system of antibiotic CC 1065)  
 IT 105518-45-4  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (acetylation of)  
 IT 107640-63-1P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and attempted reduction of, by lithium borohydride)  
 IT 105518-44-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

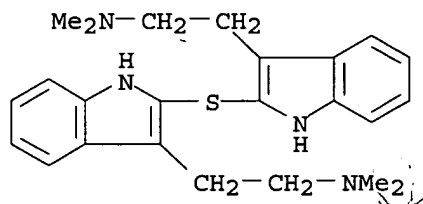
- (Reactant or reagent)  
(preparation and borane-trifluoroacetic acid reduction of)
- IT 107640-66-4P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and desulfurization of)
- IT 107640-65-3P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and hydrogenation of)
- IT 107640-64-2P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and hydrogenolysis of)
- IT 107640-61-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and intramol. cyclocondensation of)
- IT 107640-62-0P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and reactions of)
- IT 107640-60-8P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and rearrangement of)
- IT 82221-06-5P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)
- IT 69866-21-3P, Antibiotic CC 1065  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of dihydropyrroloindole ring system of, by regioselective sigmatropic rearrangement of related azasulfonium ylide)
- IT 71086-99-2  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with Et (methylthio)acetate)
- IT 4455-13-4, Ethyl (methylthio)acetate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with Et aminoindolecarboxylate)
- IT 107640-66-4P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and desulfurization of)
- RN 107640-66-4 HCAPLUS
- CN Benzo[1,2-b:4,3-b']dipyrrole-2-carboxylic acid, 7,7'-thiobis[3,6-dihydro-8-(methylthio)-, diethyl ester (9CI) (CA INDEX NAME)



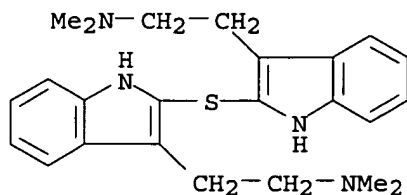
ED Entered STN: 02 Jun 1985  
 TI A novel serotonin antagonist 2,2'-bis[3-(2-N,N-dimethylaminoethyl)indolyl]sulfide (BDIS)  
 AU Chu, C. K.; Wander, J. D.; Tackett, R. L.; Iturrian, W. B.; Schmitz, J. P.; Garner, G. E.; Chae, K.  
 CS Coll. Pharm., Univ. Georgia, Athens, GA, 30602, USA  
 SO Journal of Heterocyclic Chemistry (1984), 21(6), 1901-3  
 CODEN: JHTCAD; ISSN: 0022-152X  
 DT Journal  
 LA English  
 CC 27-10 (Heterocyclic Compounds (One Hetero Atom))  
 Section cross-reference(s): 1  
 GI



AB A novel serotonin antagonist, 2,2'-bis[3-(2-N,N-dimethylaminoethyl)indolyl]sulfide (I) was synthesized in 1 step from the reaction of N,N-dimethyltryptamine with SO<sub>2</sub>Cl<sub>2</sub>.  
 ST sulfide bisdimethylaminoethylindolyl; diindolyl sulfide dimethylaminoethyl; serotonin antagonist diindolyl sulfide  
 IT Neurotransmitter antagonists  
 (serotonergic, bis(dimethylaminoethylindolyl) sulfide)  
 IT **96249-77-3P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and serotonin antagonist activity of)  
 IT **96249-78-4P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 IT 61-50-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with thionyl chloride)  
 IT **96249-77-3P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and serotonin antagonist activity of)  
 RN 96249-77-3 HCAPLUS  
 CN 1H-Indole-3-ethanamine, 2,2'-thiobis[N,N-dimethyl- (9CI) (CA INDEX NAME)



IT **96249-78-4P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 96249-78-4 HCAPLUS  
 CN 1H-Indole-3-ethanamine, 2,2'-thiobis[N,N-dimethyl-, monohydrochloride  
 (9CI) (CA INDEX NAME)



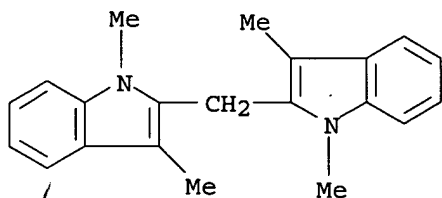
● HCl

✓ I59 ANSWER 17 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1984:492775 HCAPLUS  
 DN 101:92775  
 ED Entered STN: 15 Sep 1984  
 TI Reactions of electron-rich heterocycles with derivatives of carboxylic  
 ortho acids, II. Acid catalyzed reactions of 3-substituted indoles with  
 ethyl orthoformate  
 AU Mueller, Johann; Pindur, Ulf  
 CS Inst. Pharm. Lebensmittelchem., Univ. Wuerzburg, Wuerzburg, D-8700, Fed.  
 Rep. Ger.  
 SO Archiv der Pharmazie (Weinheim, Germany) (1984), 317(6), 555-61  
 CODEN: ARPMAS; ISSN: 0365-6233  
 DT Journal  
 LA German  
 CC 41-8 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic  
 Sensitizers)  
 Section cross-reference(s): 27  
 OS CASREACT 101:92775  
 GI

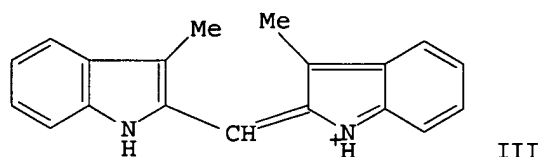
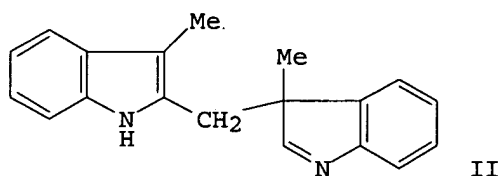
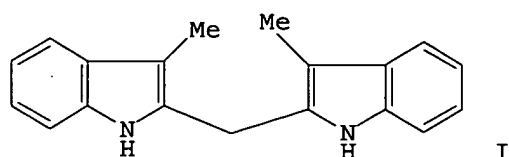
\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB I (R = Me, R1 = H) [83-34-1] and I (R = R1 = Me) [875-30-9] reacted with  
 HC(OEt)3 [122-51-0] in acid medium to give the corresponding di- and  
 triindolylmethanes II, III, IV, and V. IV (R = Me, R1 = H) [548-12-9]  
 was oxidized by FeCl3 to the triphenylmethane dye VI (R = Me, R1 = H, X =  
 ClO4) [91455-07-1]. Tryptamine-HCl (VII) [343-94-2] was formylated by  
 HC(OEt)3 in acid medium to give 3-[2-(formylamino)ethyl]indole  
 [6502-82-5]. Blocking of the NH2 group of VII, i.e., by Ac, followed by  
 reaction with HC(OEt)3 in acidic MeOH gave tris[3-[2-  
 (acetylamino)ethyl]indol-2-yl]methane [91455-06-0].  
 ST methylindole condensation ethyl orthoformate; indole condensation ethyl  
 orthoformate; triindolylmethane dye; cyanine indole; diindolylmethane dye  
 IT Condensation reaction  
 (of indoles with Et orthoformate in presence of acid)  
 IT Dyes  
 (triindolylmethane derivs., preparation of)  
 IT 83-34-1 343-94-2 875-30-9 1016-47-3  
 RL: USES (Uses)  
 (condensation of, with Et orthoformate in presence of acid)  
 IT 122-51-0  
 RL: USES (Uses)  
 (condensation of, with methyl- and di-methylindole in presence of acid)  
 IT 91455-00-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and reaction with methanol)  
 IT 6502-82-5P 91454-96-5P 91454-98-7P 91455-01-5P **91455-03-7P**  
 91455-06-0P 91455-07-1P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and spectra of)  
 IT 91455-05-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 IT 548-12-9P 91455-02-6P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation, oxidation and spectra of)  
 IT **91455-03-7P**  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and spectra of)  
 RN 91455-03-7 HCAPLUS  
 CN 1H-Indole, 2,2'-methylenebis[1,3-dimethyl- (9CI) (CA INDEX NAME)



✓ L59 ANSWER 18 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1980:471451 HCAPLUS  
 DN 93:71451  
 ED Entered STN: 12 May 1984  
 TI 2,3'-Bis(3-methylindolyl)methane from 3-methylindole and formaldehyde  
 AU Brieskorn, Carl Heinz; Huber, Johannes  
 CS Inst. Pharm. Lebensmittelchem., Univ. Wuerzburg, Wuerzburg, D 8700, Fed.  
 Rep. Ger.  
 SO Archiv der Pharmazie (Weinheim, Germany) (1979), 312(12),  
 1046-51  
 CODEN: ARPMAS; ISSN: 0365-6233  
 DT Journal  
 LA German  
 CC 27-11 (Heterocyclic Compounds (One Hetero Atom))  
 GI



AB Hopkins-Cole reaction of 3-methylindole with H<sub>2</sub>CO in MeOH-H<sub>2</sub>SO<sub>4</sub> gave I and II. II is the precursor of ion III, the color product of this reaction.

ST Hopkins Cole reaction methylindole; indole methylenebis

IT 36798-17-1P 61995-50-4P 73251-99-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

IT 83-34-1 95-20-5

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with formaldehyde)

IT 50-00-0, reactions

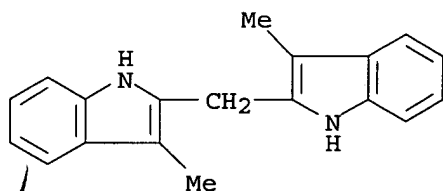
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with methylindole)

IT 36798-17-1P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 36798-17-1 HCAPLUS

CN 1H-Indole, 2,2'-methylenebis[3-methyl- (9CI) (CA INDEX NAME)



L59 ANSWER 19 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1975:111897 HCAPLUS

DN 82:111897

ED Entered STN: 12 May 1984

TI Reaction of skatole with iodine in the presence of thiourea

AU Hino, Tohru; Endo, Mamoru; Nakagawa, Masako

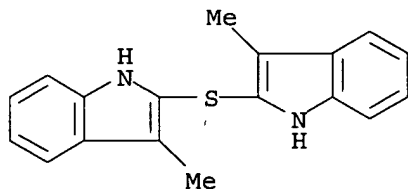
CS Fac. Pharm. Sci., Chiba Univ., Chiba, Japan

SO Chemical & Pharmaceutical Bulletin (1974), 22(11), 2728-31

CODEN: CPBTAL; ISSN: 0009-2363

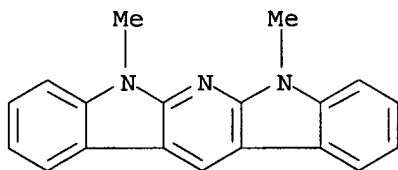
DT Journal

LA English  
 CC 27-11 (Heterocyclic Compounds (One Hetero Atom))  
 GI For diagram(s), see printed CA Issue.  
 AB Skatole was treated with iodine and H<sub>2</sub>NCSNH<sub>2</sub> in EtOH containing KI to give the indoles I (11.6%), II (23%), and III (13%), 3.4% 3-methyloxindole, 3-methyldioxindole (trace), and 2.2% bis(3-methyl-2-indolyl) sulfide. I also was prepared by treating 2-bromoskatole with H<sub>2</sub>N-CSNH<sub>2</sub>-HBr followed by KI.  
 ST skatole iodine thiourea; indole pseudothioureido; pseudothiourea indolyl; biindolyl oxo methyl  
 IT 1504-06-9P 3040-34-4P 7135-39-9P 51206-74-7P 55092-41-6P  
 55092-42-7P 55092-43-8P 55092-44-9P **55132-21-3P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 IT 83-34-1  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with iodine in present of thiourea)  
 IT 1484-28-2 2406-05-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with thiourea)  
 IT 7553-56-2, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (with of skatole in presents of thiourea)  
 IT 62-56-6, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (with skatole and iodine)  
 IT **55132-21-3P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 55132-21-3 HCAPLUS  
 CN 1H-Indole, 2,2'-thiobis[3-methyl- (9CI) (CA INDEX NAME)



✓ L59 ANSWER 20 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1974:413408 HCAPLUS  
 DN 81:13408  
 ED Entered STN: 12 May 1984  
 TI Novel synthesis of benzo[b]- $\alpha$ -carboline  
 AU Sagitullin, R. S.; Mel'nikova, T. V.; Kost, A. N.  
 CS Mosk. Gos. Univ., Moscow, USSR  
 SO Vestnik Moskovskogo Universiteta, Seriya 2: Khimiya (1974),  
 15(1), 118-19  
 CODEN: VMUKA5; ISSN: 0579-9384  
 DT Journal  
 LA Russian  
 CC 28-2 (Heterocyclic Compounds (More Than One Hetero Atom))  
 GI For diagram(s), see printed CA Issue.  
 AB Benzo [b] carboline I (R = H, 2-Me, 4-Me, 4-MeO) were prepared in 30-92% yields by reaction of 2-chloro-indole-3-carboxaldehyde (II) with RNH<sub>2</sub>. Treatment of 2-amino-1-methylindole with II gave indolocarboline III.  
 ST benzocarboline; indolocarboline; indoloquinoline  
 IT 243-38-9P **52533-16-1P** 52533-17-2P 52533-18-3P 52533-19-4P  
 RL: SPN (Synthetic preparation); PREP (Preparation)

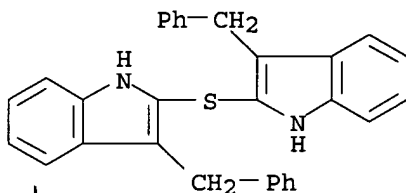
(preparation of)  
 IT 90-04-0 95-53-4 106-49-0 36092-88-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with 2-chloroindole-3-carboxaldehyde)  
 IT 5059-30-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with amines)  
 IT 62-53-3, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (with 2-chloroindole-3-carboxaldehyde)  
 IT 52533-16-1P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 52533-16-1 HCAPLUS  
 CN Pyrido[2,3-b:6,5-b']diindole, 5,7-dihydro-5,7-dimethyl- (9CI) (CA INDEX NAME)



✓ L59 ANSWER 21 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1974:59818 HCAPLUS  
 DN 80:59818  
 ED Entered STN: 12 May 1984  
 TI Preparation of 3-substituted 2-indolinethiones via diindolyl disulfides.  
 Reaction of 3-substituted indoles with sulfur monochloride  
 AU Hino, Tohru; Suzuki, Toshikazu; Takeda, Sachie; Kano, Nobuko; Ishii, Yoichi; Sasaki, Akira; Nakagawa, Masako  
 CS Fac. Pharm. Sci., Chiba Univ., Chiba, Japan  
 SO Chemical & Pharmaceutical Bulletin (1973), 21(12), 2739-48  
 CODEN: CPBTAL; ISSN: 0009-2363  
 DT Journal  
 LA English  
 CC 27-11 (Heterocyclic Compounds (One Hetero Atom))  
 GI For diagram(s), see printed CA Issue.  
 AB The reaction of 3-alkylindoles (I) with S2Cl2 in ether gave the corresponding 2-diindolyl disulfides (II, n = 2) as the main product, and mono- and trisulfides (I, n = 1,3) as minor products. The similar reaction of 3-arylindoles gave the disulfides in good yields. Reduction of the diindolyl disulfides with NaBH4 in EtOH afforded the 2-indolinethiones (III) in good yields.  
 ST indolinethione diindole disulfide redn  
 IT Reduction  
 (of diindolyl disulfides, indolinethiones by)  
 IT 51206-68-9P 51206-69-0P 51206-70-3P 51206-76-9P  
 51206-78-1P 51206-85-0P 51206-86-1P 51251-68-4P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and reduction of, indolinethiones by)  
 IT 4822-40-6P 13637-41-7P 19155-23-8P 33689-22-4P 33693-09-3P  
 33693-10-6P 33693-11-7P 33693-12-8P 33814-51-6P 51206-71-4P  
 51206-72-5P 51206-73-6P 51206-74-7P 51206-75-8P 51206-79-2P  
 51206-80-5P 51206-81-6P 51206-83-8P 51206-89-4P 51206-90-7P  
 51206-92-9P 51206-93-0P 51206-94-1P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

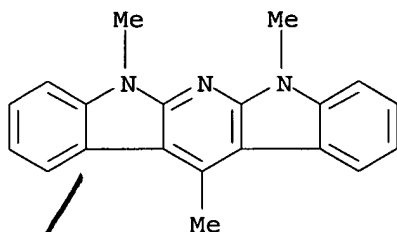


IT 875-30-9 1504-16-1 5782-23-0 16886-10-5 23543-66-0 30020-98-5  
 51206-77-0 51206-82-7 51206-84-9 51206-87-2 51206-91-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with sulfur monochloride)  
 IT 51206-88-3  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reduction of, indolinethiones by)  
 IT **51206-69-0P**  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and reduction of, indolinethiones by)  
 RN 51206-69-0 HCAPLUS  
 CN 1H-Indole, 2,2'-thiobis[3-(phenylmethyl)- (9CI) (CA INDEX NAME)



✓ L59 ANSWER 22 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1974:3413 HCAPLUS  
 DN 80:3413  
 ED Entered STN: 12 May 1984  
 TI Indole chemistry. XXXVIII. Cleavage of a carbon-carbon bond during the  
 reaction of 2-aminoindoles with difunctional compounds  
 AU Mel'nikova, T. V.; Kost, A. N.; Sagitullin, R. S.; Borisov, N. N.  
 CS Mosk. Gos. Univ. im. Lomonosova, Moscow, USSR  
 SO Khimiya Geterotsiklicheskikh Soedinenii (1973), (9), 1273-8  
 CODEN: KGSSAQ; ISSN: 0132-6244  
 DT Journal  
 LA Russian  
 CC 28-2 (Heterocyclic Compounds (More Than One Hetero Atom))  
 GI For diagram(s), see printed CA Issue.  
 AB Indolocarboline (I; R = R1 = Me) was obtained in 43% yield by treatment of  
 the aminoindole II with Me2C:CHCOME in DMF at 10°. Analogously  
 obtained were .apprx.80% I (R = Me, PhCH2, R1 = Ph) from PhCH:CR2CO2Et (R2  
 = CN, CO2Et) and the appropriate indole. I (R = Me, PhCH2, R1 =  
 p-Me2NC6H4) were obtained in 30% and 80% yields by base-catalyzed  
 condensation of indoline (III) with the appropriate 2-aminoindole.  
 ST indolocarboline; condensation unsatd carbonyl aminoindole  
 IT 13174-97-5P 13315-71-4P 17276-85-6P **29970-52-3P**  
 29970-53-4P 29970-56-7P 29970-63-6P 50426-41-0P 50793-70-9P  
 50793-71-0P 50931-37-8P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 IT 50980-55-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with 1-benzyl-2-aminoindole)  
 IT 625-33-2  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with 2-aminoindole hydrochloride)  
 IT 42456-82-6  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with diacetone alc.)  
 IT 50449-36-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with p-dimethylaminobenzaldehyde)

IT 27878-37-1  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with unsatd. ketones)  
 IT 29970-52-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 29970-52-3 HCAPLUS  
 CN Pyrido[2,3-b:6,5-b']diindole, 5,7-dihydro-5,7,12-trimethyl- (8CI, 9CI)  
 (CA INDEX NAME)



L59 ANSWER 23 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1972:405277 HCAPLUS  
 DN 77:5277  
 ED Entered STN: 12 May 1984  
 TI Light-induced reactions of  $\alpha$ -(N-alkylanilino) ketones. Formation of diindolylmethanes  
 AU Hill, J.; Townend, J.  
 CS Dep. Chem., Univ. Salford, Salford, UK  
 SO Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (1972), (9-10), 1210-19  
 CODEN: JCPRB4; ISSN: 0300-922X  
 DT Journal  
 LA English  
 CC 27-11 (Heterocyclic Compounds (One Hetero Atom))  
 Section cross-reference(s): 25  
 AB Irradiation of 6  $\alpha$ -(N-alkylanilino) ketones,  $\text{PhN}(\text{CH}_2\text{R})\text{CHR}_1\text{COMe}$  (I; R, R1 = H, Me, or Ph), in MeOH, Me2CHOH, or benzene caused fission of the  $\alpha$  C-N bond giving a secondary amine ( $\text{PhNHCH}_2\text{R}$ ), a ketone ( $\text{R}_1\text{CH}_2\text{COMe}$ ), an  $\alpha$ -[p-(alkylamino)phenyl] ketone formed by para rearrangement, and a substituted 2-methylindole formed by ortho rearrangement with subsequent cyclodehydration. I (R1 = H) also gave a diindol-3-ylmethane derived from the 2-methylindole. Irradiation of I with 1,2-dimethylindole gave diindolylmethanes, via 1-phenylazetidins as labile intermediates. Irradiation of 7 anilino ketones  $\text{PhNRCH}_2\text{COR}_1$  (R = H, Me, or Me3C; R1 = Me, Et, Me3C, or Ph) was also studied.  
 ST irradiation of  $\alpha$ -(N-alkylanilino) ketone; diindolylmethane anilino ketone irradiation;  
 indolylmethane anilino ketone irradiation  
 IT Ketones, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (alkylanilino, irradiation of)  
 IT Photolysis  
 (of alkylanilino ketones)  
 IT 5883-81-8 15885-06-0 27862-73-3 31399-19-6 32119-53-2 36798-40-0  
 36798-41-1 36798-42-2 36810-72-7 36810-74-9 36810-75-0  
 36810-78-3 36810-79-4 36810-80-7  
 RL: PROC (Process)  
 (irradiation of)  
 IT 17371-60-7P 36798-43-3P 36798-44-4P 36798-45-5P 36798-46-6P  
 36798-47-7P 36798-48-8P 36798-49-9P 36798-50-2P 36798-51-3P  
 36798-52-4P 36798-53-5P 36798-54-6P 36798-55-7P 36798-56-8P  
 36798-57-9P

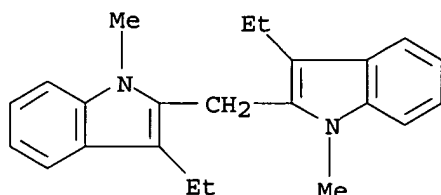
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

IT **36798-56-8P**

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 36798-56-8 HCAPLUS

CN 1H-Indole, 2,2'-methylenebis[3-ethyl-1-methyl- (9CI) (CA INDEX NAME)



L59 ANSWER 24 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1972:405273 HCAPLUS

DN 77:5273

ED Entered STN: 12 May 1984

TI Synthesis of 2,2'-methylenediindole derivatives. Chemistry of the  
Hopkins-Cole reaction

AU Brieskorn, Carl H.; Mechtold, Gerhard

CS Inst. Pharm. Lebensmittelchem., Univ. Wurzburg, Wuerzburg, Fed. Rep. Ger.

SO Zeitschrift fuer Lebensmittel-Untersuchung und -Forschung (1972  
) , 147(6), 338-42

CODEN: ZLUFAR; ISSN: 0044-3026

DT Journal

LA German

CC 27-11 (Heterocyclic Compounds (One Hetero Atom))

Section cross-reference(s): 80

GI For diagram(s), see printed CA Issue.

AB The Hopkins-Cole reaction was used to identify 3-indolyl derivs. With  
CH<sub>2</sub>O and 3-methylindole (I) a 2-hydroxymethylene compound was formed  
initially; a second step gave II (R<sub>1</sub> = Me, R<sub>2</sub> = H). Reaction of I and  
HCOCO<sub>2</sub>H gave II (R<sub>1</sub> = Me, R<sub>2</sub> = CO<sub>2</sub>H) which decarboxylated immediately. II  
(R<sub>1</sub> = Me, R<sub>2</sub> = CO<sub>2</sub>Me) was isolated if MeOH was the solvent. II (R<sub>1</sub> =  
CH<sub>2</sub>CO<sub>2</sub>Me, (CH<sub>2</sub>)<sub>2</sub>CO<sub>2</sub>Me, (CH<sub>2</sub>)<sub>2</sub>CO<sub>2</sub>H, CH<sub>2</sub>CONHNH<sub>2</sub>, R<sub>2</sub> = H) were also prepared  
Oxidation of II gave colored methylidyne derivs.

ST indole methylene Hopkins Cole; analysis indole Hopkins Cole; color reagent  
Hopkins Cole; reagent color Hopkins Cole

IT 33186-56-0P **36798-17-1P** 36798-18-2P 36798-20-6P

36798-21-7P 36798-22-8P 36907-84-3P

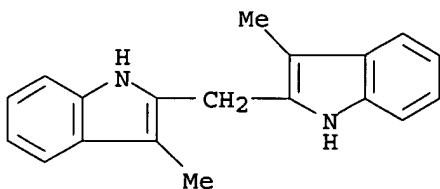
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

IT **36798-17-1P**

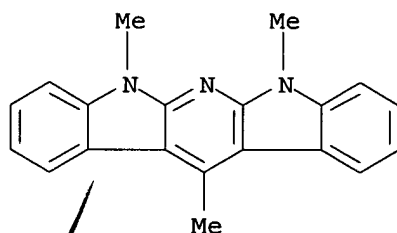
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 36798-17-1 HCAPLUS

CN 1H-Indole, 2,2'-methylenebis[3-methyl- (9CI) (CA INDEX NAME)

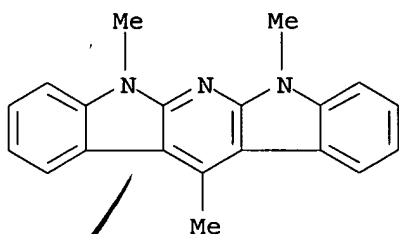


L59 ANSWER 25 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1972:153639 HCAPLUS  
 DN 76:153639  
 ED Entered STN: 12 May 1984  
 TI Indole chemistry. XXVIII. 2-Oxo- $\alpha$ -carboline  
 AU Borisov, N. N.; Sagitullin, R. S.; Kost, A. N.  
 CS Mosk. Gos. Univ. im. Lomonosova, Moscow, USSR  
 SO Khimiya Geterotsiklicheskih Soedinenii (1972), (1), 48-54  
 CODEN: KGSSAQ; ISSN: 0132-6244  
 DT Journal  
 LA Russian  
 CC 28 (Heterocyclic Compounds (More Than One Hetero Atom))  
 GI For diagram(s), see printed CA Issue.  
 AB I (R = Me, PhCH<sub>2</sub>, R<sub>1</sub> = H, Me, Ph, p-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>, R<sub>2</sub> = H, Et, Ph, PhCH<sub>2</sub>) were  
 obtained (16-97%) by treating 2-aminoindoles with  $\beta$ -oxoesters or  
 dike-tenes.  
 ST carboline aminoindole; indole carboline  
 IT 29970-52-3P 36156-79-3P 36156-80-6P 36156-81-7P  
 36156-82-8P 36156-83-9P 36156-84-0P 36156-85-1P 36156-86-2P  
 36156-87-3P 36156-88-4P 36156-89-5P 36157-03-6P 36157-04-7P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 IT 29970-52-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 29970-52-3 HCAPLUS  
 CN Pyrido[2,3-b:6,5-b']diindole, 5,7-dihydro-5,7,12-trimethyl- (8CI, 9CI)  
 (CA INDEX NAME)



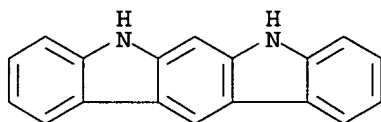
D59 ANSWER 26 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1971:3532 HCAPLUS  
 DN 74:3532  
 ED Entered STN: 12 May 1984  
 TI Indole chemistry. XVII. Condensation of 2-aminoindoles with aldehydes  
 AU Sagitullin, R. S.; Kost, A. N.; Matveeva, E. D.; Nemudrova, N. I.  
 CS Mosk. Gos. Univ. im. Lomonosova, Moscow, USSR  
 SO Khimiya Geterotsiklicheskih Soedinenii (1970), (7), 920-2  
 CODEN: KGSSAQ; ISSN: 0132-6244  
 DT Journal  
 LA Russian  
 CC 28 (Heterocyclic Compounds (More Than One Hetero Atom))  
 GI For diagram(s), see printed CA Issue.  
 AB Equimolar quantities of I, aldehyde, and KOH were kept in 10 ml EtOH 12 hr  
 under an inert gas at room temperature to give II (R, R<sub>1</sub>, m.p., and yield  
 given): Me, Me, 265-6°, 67; Me, Ph, 288-90°, 72; Me,  
 3,4-(MeO)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>, 284-8°, 89; Me, p-MeOC<sub>6</sub>H<sub>4</sub>, 284-6°, 64; Me,  
 p-Me<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>, 297-9°, 77; Me, p-ClC<sub>6</sub>H<sub>4</sub>, 314-15°, 81; Me,  
 o-ClC<sub>6</sub>H<sub>4</sub>, 310-12°, 66; Me, p-Br-C<sub>6</sub>H<sub>4</sub>, 328-9°, 77; Me,  
 p-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>, 286-8°, 99; Me, m-O<sub>2</sub>N-C<sub>6</sub>H<sub>4</sub>, 345-6°, 79; PhCH<sub>2</sub>,

Me, 244-6°, 55; PhCH<sub>2</sub>, Ph, 288-90°, 98.  
 ST indolopyridines prepn; pyridines diindolo  
 IT Aldehydes, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (condensation of, with aminoindole derivs.)  
 IT Condensation, chemical  
 (of aldehydes with aminoindole derivs.)  
 IT Indole, 2-amino-, derivs.  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (condensation of, with aldehydes)  
 IT 29970-52-3P 29970-53-4P 29970-54-5P 29970-55-6P  
 29970-56-7P 29970-57-8P 29970-58-9P 29970-59-0P 29970-60-3P  
 29970-61-4P 29970-62-5P 29970-63-6P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 IT 29970-52-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 29970-52-3 HCAPLUS  
 CN Pyrido[2,3-b:6,5-b']diindole, 5,7-dihydro-5,7,12-trimethyl- (8CI, 9CI)  
 (CA INDEX NAME)



✓ L59 ANSWER 27 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1961:124767 HCAPLUS  
 DN 55:124767  
 OREF 55:23489g-i  
 ED Entered STN: 22 Apr 2001  
 TI Preparation of some condensed ring carbazole derivatives  
 AU Grotta, Henry M.; Riggle, Charles J.; Bearse, Arthur E.  
 CS Battelle Mem. Inst., Columbus, OH  
 SO Journal of Organic Chemistry (1961), 26, 1509-11  
 CODEN: JOCEAH; ISSN: 0022-3263  
 DT Journal  
 LA Unavailable  
 CC 10G (Organic Chemistry: Heterocyclic Compounds)  
 OS CASREACT 55:124767  
 AB A solution of 10 g. p-(PhNH)2C6H4 in 45 ml. Me2C6H4 was passed over 38 g. 2% Pt-MgO catalyst at 560° during 255 min. with H (170 ml./min.) and H2O (6.5 g./hr.). The Me2C6H4-insol. portion of the product, recrystd. from quinoline, gave 0.95 g. indolo[3,2-b]carbazole (I), light yellow crystals, decomposing above 470°. I was also prepared by the Sn-HCl reduction of urorosein (Fearon and Boggust, CA 44, 7904d). Similar treatment of 22 g. molten m-(PhNH)2C6H4 at 500°, followed by MeOH extraction and Me2C6H4 recrystn. of the MeOH-insol. residue gave 0.7 g. indolo[2,3-b]carbazole (II), m. 358-60°. This catalytic dehydrogenation method was also used to convert N-phenyl-2-naphthylamine to 2,3-benzocarbazole and N-phenyl-1-naphthylamine to 1,2-benzocarbazole, but failed to give the correspondingly substituted carbazole from p-FC6H4NHPh, Ph2NEt, (p-MeC6H4)2NH, or p-HOC6H4NHPh. Infrared spectra for I and II were given.  
 IT Infrared spectra

(of carbazole derivs.)  
 IT 86-74-8, Carbazole  
 (condensed-ring analogs)  
 IT 239-01-0, 11H-Benzo[a]carbazole 243-28-7, 5H-Benzo[b]carbazole  
 6336-32-9, Indolo[3,2-b]carbazole, 5,11-dihydro- 111296-90-3,  
 Indolo[2,3-b]carbazole, 5,7-dihydro-  
 (preparation of)  
 IT 111296-90-3, Indolo[2,3-b]carbazole, 5,7-dihydro-  
 (preparation of)  
 RN 111296-90-3 HCAPLUS  
 CN Indolo[2,3-b]carbazole, 5,7-dihydro- (6CI, 9CI) (CA INDEX NAME)



L59 ANSWER 28 OF 28 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1957:1737 HCAPLUS  
 DN 51:1737  
 OREF 51:363f-i,364a-d  
 ED Entered STN: 22 Apr 2001  
 TI Preparation of indolocarbazoles. VIII. Preparation of 1-methylindolo[2',3'-2,3]carbazole  
 AU Swindells, Margaret L.; Tomlinson, Muriel L.  
 CS Univ. Oxford, UK  
 SO Journal of the Chemical Society, Abstracts (1956) 1135-8  
 CODEN: JCSAAZ; ISSN: 0590-9791  
 DT Journal  
 LA Unavailable  
 CC 10 (Organic Chemistry)  
 AB cf. C.A. 50, 4924f. 1-Methylindolo-[2',3'-2,3]carbazole (I) was prepared from 7-amino-1,2,3,4,10,11-hexahydro-8-methylcarbazole (II) and 2-hydroxycyclohexanone (III). It was difficult to acylate 8-chloro-1,2,3,4-tetrahydrocarbazole (IV) and the corresponding 8-Me compound (V). IV (5.8 g.) in Et<sub>2</sub>O added gradually to a solution of EtMgBr (from 4.7 g. EtBr), the solution refluxed 5 min. and slowly treated with 2.7 g. AcCl in Et<sub>2</sub>O after 1 hr. dilute H<sub>2</sub>SO<sub>4</sub> added, and the residue distilled gave unchanged IV and 9-acetyl-8-chloro-1,2,3,4-tetrahydrocarbazole (VI), b<sub>0.1</sub> 155-65°, m. 88° (from MeOH). VI hydrolyzed with aqueous alc. KOH gave IV. V (86 g.), 160 cc. HCl, 160 cc. EtOH, and 160 g. Sn heated 4-5 hrs., the solution decanted from the Sn, the alc. removed, the solution treated with 800 cc. 40% NaOH, and steam distilled gave 75% 8-methyl-1,2,3,4,10,11-hexahydrocarbazole (VII), needles, m. 48°; HCl salt, prisms, m. 216°; 9-Ac derivative, plates, m. 89°; 9-Bz derivative, needles, m. 114° (from alc.). IV (24 g.) similarly reduced 4-5 hrs. with Sn and HCl gave 2 g. 8-chloro-1,2,3,4,10,11-hexahydrocarbazole (VIII), a colorless liquid; 9-Ac derivative, needles, m. 78.5-9.5°; HCl salt, prisms, m. 199-206° (decomposition); picrate, m. 144°. VII (10.8 g.) in 100 cc. H<sub>2</sub>SO<sub>4</sub> treated 15 min. at 3° with 5.8 g. KNO<sub>3</sub>, poured on ice, neutralized at 0° with NH<sub>4</sub>OH, and purified yielded 9.6 g. 1,2,3,4,10,11-hexahydro-8-methyl-7-nitrocarbazole (IX), yellow plates, m. 67-70°, raised to 71.5-2.5° by further recrystn.; 9-Ac derivative (X), prisms, m. 178-9°. IX (3 g.) in ligroine run on Al<sub>2</sub>O<sub>3</sub> and eluted with ligroine-C<sub>6</sub>H<sub>6</sub> and finally C<sub>6</sub>H<sub>6</sub> and a study of the fractions indicated one product, and no 5-NO<sub>2</sub> compound present. 8-Chloro-1,2,3,4,10,11-hexahydro-7-nitrocarbazole, needles, m. 158-9° (from 75% alc.), was similarly prepared from VIII. IX (1.5 g.) reduced with PtO<sub>2</sub> and H in MeOH yielded II

as a liquid that solidified to a glass at 0° recrystn. gave light brown prisms, m. 125-35° (decomposition); 7-acetamido-9-acetyl analog (XI), prisms, m. 208-4°. A similar reduction of X also gave II, converted by acetylation into XI. 9-Acetyl-7-amino-hexahydrocarbazole (1.5 g.) heated with 0.7 g. III at 120-30° until evolution of H<sub>2</sub>O ceased, HCl added, and the temperature raised to 135-45° yielded 1.3 g. 9-acetyl-4',5,5',6,6',7,7',8,12,13-decahydro-1-methylindolo[2',3'-2,3]carbazole (XII), prisms, m. 284-5° (from 90% AcOH). XII (0.5 g.) refluxed 20 min. with 10 cc. H<sub>2</sub>SO<sub>4</sub> and 10 cc. H<sub>2</sub>O, gave 0.4 g. dark green powder which would not be crystallized; it was heated 1.5 hrs. at 320-30° with Pd-C with CO<sub>2</sub> to give 0.2 g. crude I, m. 278-80° (from C<sub>6</sub>H<sub>6</sub>), after sublimation and crystallization. The m.p. was depressed to 245-50° when mixed with 3-methylindolo[3',2'-1,2]carbazole, m. 257°, prepared by dehydrogenation of 3-methyl-4',5,5',6,6',7,7',8-octahydroindolo[3',2'-1,2]carbazole (C.A. 49, 2412c). II (0.7 g.) and 0.4 g. III and a little HCl at 120-30° gave prisms, m. 290-300° (decomposition) (from AcOH), which appeared to be 1,2,3,4,10,11-hexahydro-8-methyl-7-(2-oxocyclohexylamino)carbazole AcOH (XIII). Heating 0.4 g. XIII with Pd-C as above gave I, identical with that prepared from XII,  $\lambda$  240, 265, 275, 306, 344, 360 m $\mu$  (log  $\epsilon$  4.614, 4.547, 4.538, 4.794, 4.055, and 4.131), which gave a violet solution in H<sub>2</sub>SO<sub>4</sub>, changing to blue-green and fading to reddish brown on addition of HNO<sub>3</sub>, and was unaffected by refluxing in Ac<sub>2</sub>O, charring if a little H<sub>2</sub>SO<sub>4</sub> were added to the solution

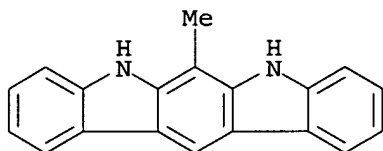
- IT Ring closure or formation  
(heterocyclic N compds. by)
- IT Ultraviolet and visible, spectra  
(of 5,7-dihydro-6-methylindolo[2,3-b]carbazole)
- IT Benzophenone, 3-(5-benzoyl-1H-benzotriazol-1-yl)-  
Carbazole, 2,6-dibenzoyl-  
Carbazole, 2-acetyl-2-benzoyl-  
Carbazole, 2-acetyl-2-benzoyl-9-methyl-  
Carbazole, 6-acetyl-6-benzoyl-  
Carbazole, 6-acetyl-6-benzoyl-9-methyl-
- IT 100116-42-5, Carbazole, 8-chloro-1,2,3,4,4a,9a-hexahydro-  
(and salts)
- IT 7727-37-9, Nitrogen  
(compds., heterocyclic)
- IT 86-74-8, Carbazole  
(derivs.)
- IT 100119-20-8, Carbazole, 8-chloro-1,2,3,4,4a,9a-hexahydro-7-nitro-  
100615-55-2, Carbazole, 1,2,3,4,4a,9a-hexahydro-8-methyl-7-nitro-  
100709-39-5, Carbazole, 9-acetyl-8-chloro-1,2,3,4-tetrahydro-  
100958-16-5, Carbazole, 9-acetyl-1,2,3,4,4a,9a-hexahydro-8-methyl-7-nitro-  
101273-74-9, Carbazole, 2,6-diacetyl- 101442-01-7, Carbazole,  
2,6-diacetyl-9-methyl- 101602-72-6, Carbazole, 7-acetamido-9-acetyl-  
1,2,3,4,4a,9a-hexahydro-8-methyl- 101937-55-7, Carbazole,  
9-acetyl-8-chloro-1,2,3,4,4a,9a-hexahydro- 102024-02-2, Ketone,  
9-methylcarbazol-2-yl phenyl 102319-63-1, Cyclohexanone,  
2-[(4b,5,6,7,8,8a-hexahydro-1-methylcarbazol-2-yl)amino]-(?)  
103035-45-6, Carbazole, 2,6-dibenzoyl-9-methyl- 103265-38-9, Carbazole,  
2,6,9-tribenzoyl- 105341-03-5, Benzophenone, 3-amino-4,4''-iminodi-  
107203-22-5, Carbazole, 1,2,3,4,4a,9a-hexahydro-8-methyl-, hydrochloride  
107203-23-6, Carbazole, 1,2,3,4,4a,9a-hexahydro-8-methyl- 108839-90-3,  
Carbazole, 9-acetyl-1,2,3,4,4a,9a-hexahydro-8-methyl- 109813-81-2,  
Benzophenone, 4-(m-acetylanilino)-3-nitro- 109937-16-8, Carbazole,  
9-benzoyl-1,2,3,4,4a,9a-hexahydro-8-methyl- 110436-03-8, Carbazole,  
6-acetyl-2-benzoyl-9-methyl- 110436-49-2, Carbazole,  
2-acetyl-6-benzoyl-9-methyl- 110746-69-5, Carbazole, 6-acetyl-2-benzoyl-  
110747-41-6, Carbazole, 2-acetyl-6-benzoyl- 112300-72-8,  
Indolo[2,3-b]carbazole, 5-acetyl-1,2,3,4,4a,5,7,8,9,10,11,12b-dodecahydro-  
6-methyl- 112321-82-1, Carbazole, 2,9-diacetyl-6-benzoyl- 112322-36-8,  
Carbazole, 2,6-diacetyl-9-benzoyl- 112485-52-6,

Indolo[2,3-b]carbazole, 5,7-dihydro-6-methyl- 114303-32-1,  
 Cyclohexanone, 2-[(4b,5,6,7,8,8a-hexahydro-1-methylcarbazol-2-yl)amino]-  
 (?), compound with AcOH 116027-36-2, Carbazole, 6-acetyl-2,9-dibenzoyl-  
 116027-37-3, Carbazole, 9-acetyl-2,6-dibenzoyl- 116028-66-1, Carbazole,  
 2-acetyl-6,9-dibenzoyl- 117372-66-4, Benzophenone, 3-nitro-4,4''-iminodi-  
 (preparation of)

IT 112485-52-6, Indolo[2,3-b]carbazole, 5,7-dihydro-6-methyl-  
 (preparation of)

RN 112485-52-6 HCAPLUS

CN Indolo[2,3-b]carbazole, 5,7-dihydro-6-methyl- (6CI, 9CI) (CA INDEX NAME)



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(FILE 'HOME' ENTERED AT 06:32:46 ON 24 FEB 2005)  
 SET COST OFF

FILE 'REGISTRY' ENTERED AT 06:33:00 ON 24 FEB 2005

L1 STR  
 L2 1 S L1 CSS SAM

FILE 'HCAPLUS' ENTERED AT 06:41:34 ON 24 FEB 2005

L3 1 S (US20040157906 OR US6800655 OR US20040043965)/PN OR (US2004-7  
 E SRI/PA,CS  
 E SRI IN/PA,CS  
 L4 4197 S SRI INT?/PA,CS  
 L5 11957 S SRI?/PA,CS  
 E JONG L/AU  
 L6 29 S E3,E4,E12  
 E CHAO W/AU  
 L7 74 S E3,E11,E17,E24  
 L8 3312 S ?INDOL?(L)?CARBAZOL?  
 L9 1 S L4-L7 AND L8 NOT DIMER  
 L10 1 S L3,L9  
 SEL RN

FILE 'REGISTRY' ENTERED AT 06:45:31 ON 24 FEB 2005

L11 80 S E1-E80  
 L12 54 S L11 AND NR>=4  
 L13 STR L1  
 L14 STR L13  
 L15 50 S L14  
 L16 65882 S L14 FUL  
 L17 STR L13  
 L18 2 S L17 SAM SUB=L16  
 L19 155 S L17 FUL SUB=L16  
 SAV L19 SHIAO772A/A  
 L20 STR L1  
 L21 5 S L20 SAM SUB=L16  
 L22 623 S L20 FUL SUB=L16  
 SAV L22 SHIAO772B/A  
 L23 25 S L11 AND L19,L22  
 L24 29 S L12 NOT L23



L25 108 S L19 NOT (CCS OR PMS OR MNS OR AYS)/CI  
L26 10 S L25 AND (C24H20N2 OR C22H14N4O6 OR C32H30I2N2O4 OR C26H18N4O8  
L27 8 S L26 NOT (3882-39-1 OR 161011-38-7)  
SAV L27 SHIAO772C/A  
L28 STR L20  
L29 7 S L28 CSS SAM SUB=L22  
L30 STR L28  
L31 3 S L30 CSS SAM SUB=L22  
L32 82 S L30 CSS FUL SUB=L22  
SAV L32 SHIAO772D/A  
L33 76 S L32 NOT L23  
L34 72 S L33 NOT IUM  
L35 10 S L34 AND (C21H22N2 OR C18H16N2S OR C28H26N4O4S3 OR C24H30N4S O  
SAV L35 SHIAO772E/A  
L36 STR L30  
L37 7 S L36 SAM SUB=L22  
L38 109 S L36 FUL SUB=L22  
SAV L38 SHIAO773F/A  
L39 90 S L38 NOT L23  
L40 19 S L38 AND L23  
L41 11 S L39 AND (C20H14N4 OR C19H15N3 OR C18H14N2S OR C20H17N3 OR C20  
L42 10 S L41 NOT SPIRO  
SAV L42 SHIAO773G/A  
L43 53 S L23,L27,L35,L42  
SAV L43 SHIAO773H/A  
L44 514 S L22 NOT L38  
L45 498 S L44 NOT L43  
L46 333 S L45 NOT IUM  
L47 321 S L46 AND 1/NC  
L48 320 S L47 NOT IDS/CI  
L49 289 S L48 NOT METHANONE

FILE 'HCAOLD' ENTERED AT 07:30:46 ON 24 FEB 2005

L50 2 S L43  
SEL AN  
EDIT E81-E81 /AN /OREF

FILE 'HCAPLUS' ENTERED AT 07:31:31 ON 24 FEB 2005

L51 2 S E81-E82  
L52 1 S L51 NOT POLLOCK ?/AU  
L53 32 S L43  
L54 1 S L52 AND L53  
L55 1 S L53 AND L3-7  
L56 1 S L10,L55  
L57 30 S L53 NOT L54,L56  
L58 26 S L57 AND (PD<=20020820 OR PRD<=20020820 OR AD<=20020820)  
L59 28 S L54,L56,L58  
L60 4 S L53 NOT L59

FILE 'USPATFULL' ENTERED AT 07:34:31 ON 24 FEB 2005

L61 6 S L43

FILE 'REGISTRY' ENTERED AT 07:34:47 ON 24 FEB 2005

FILE 'USPATFULL' ENTERED AT 07:35:59 ON 24 FEB 2005

FILE 'HCAPLUS' ENTERED AT 07:36:13 ON 24 FEB 2005

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